

JOURNAL

OF THE

AMERICAN VETERINARY MEDICAL ASSOCIATION

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Volume CXVII OCTOBER 1950 Number 883

The
Century's



Ten Years

Third

1) Low Student Enrollment Threatens Profession

The early 1920's have been earmarked as a time of despair in the field of general practice and of low enrollment in the veterinary colleges. Equine medicine was vanishing and over-all farm-and pet-animal medicine had not been developed.

According to comprehensive records, these facts, not the higher educational standards directed by the AVMA, account for the all-time low enrollment and the general unrest prevailing during the historic ten years.

It was crystal clear, however, that without the skill, guidance, and affluence of college-trained practitioners, the honor of the veterinary profession and the good fortune of the livestock farmers would be sacrificed.

In coming installments about the 1920-1930 decade, the conduct of the commercial circle, for and against the college trained, will be touched upon in respect to its effect on the stature of the veterinary service.

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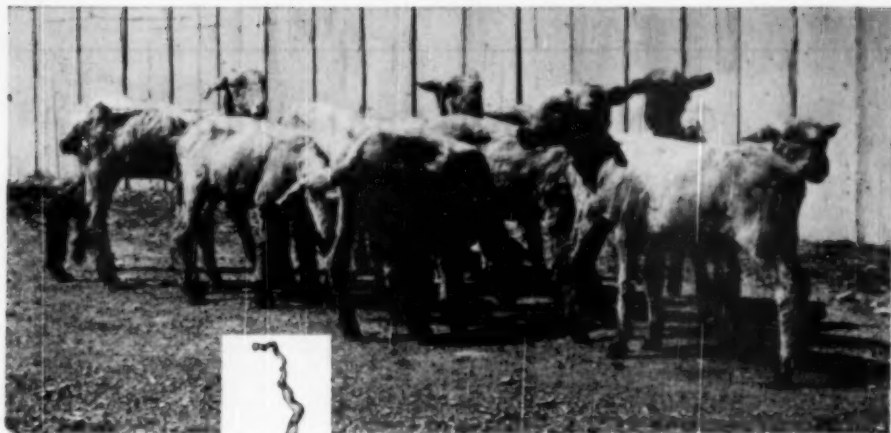
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1. United Press Dispatch, Austin, Minn., April 6, 1950.

2. "To Control Ovine and Bovine Tapeworm," The Allied Veterinarian, 27:5-8 'Aay-June 1 1950.

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Veterinary Medical Activities

Notes of the Miami Beach Convention, Aug. 21-24, 1950

♦ Dr. John R. Wells, Palm Beach, Fla., is president-elect of the AVMA for the year 1950-1951. A biographic sketch of Dr. Wells appears on p. 284.

★ ★ ★
♦ The proceedings of the 87th Annual Meeting will be published as a book, not in the JOURNAL. Most speakers cooperated by filing papers before the meeting, and these have been edited and set in type. As soon as the discussions can be transcribed and edited, the "Proceedings Book" will be published.

★ ★ ★
♦ Vice-presidents elected for the year ahead are: Howard F. Fleming, Kentucky; J. A. Campbell, Ontario; Niel W. Pieper, Connecticut; Angel M. Morales, Cuba; and W. T. Hardy, Texas.

★ ★ ★
♦ Guest speakers attending the Miami Beach convention were enthusiastic in their praise of the program as a unit and of the attention of the audience during presentation and discussion of program papers.

★ ★ ★
♦ Radio programs again helped to inform the world of the AVMA Annual Meeting. Public Relations Counsel L. R. Fairall, Des Moines, Iowa, arranged for more than 20 radio programs, in which more than 30 members participated. They covered a wide range of topics on large animals, public health, and small animals.

★ ★ ★
♦ The Educational exhibits exceeded expectations. Lt. Col. F. A. Todd won top honors with his exhibit, "Rabies Control," which contained a series of color transparencies of excellent quality. This exhibit is available for showing at state associations and similar meetings.

★ ★ ★
♦ The Cuban trip and adjourned meeting will live long in the memories of those who attended. We regret only that the weather man provided conditions which worried our Cuban hosts and prevented them from fully enjoying the tour with us.

★ ★ ★
♦ Committee reports are expressions of the activity and progress of veterinary medicine. Some of the highlights from these reports were published in the September JOURNAL, and the complete reports, as adopted by the House of Representatives at Miami Beach, will appear in the "Proceedings Book."

★ ★ ★
♦ The related groups which met during the AVMA annual convention in August formed an important part of the AVMA Annual Meeting. A list of almost 30 such groups appeared in the program.

★ ★ ★
♦ Mr. Robert Henley was elected to honorary membership in the AVMA for his work in producing clear, concentrated hog cholera serum, and for developing the synthetic medium upon which practically all tuberculin is now produced.

★ ★ ★
♦ The National Board of Veterinary Medical Examiners completed its organization and elected Dr. W. R. Krill as its first president and Dr. J. G. Hardenbergh as secretary-treasurer.

★ ★ ★
♦ "These veterinarians are sure the swellest and best behaved group I've ever seen at a convention — and I've been working conventions around here for twelve years," was the comment from a Pinkerton guard at the doors to the exhibit hall.

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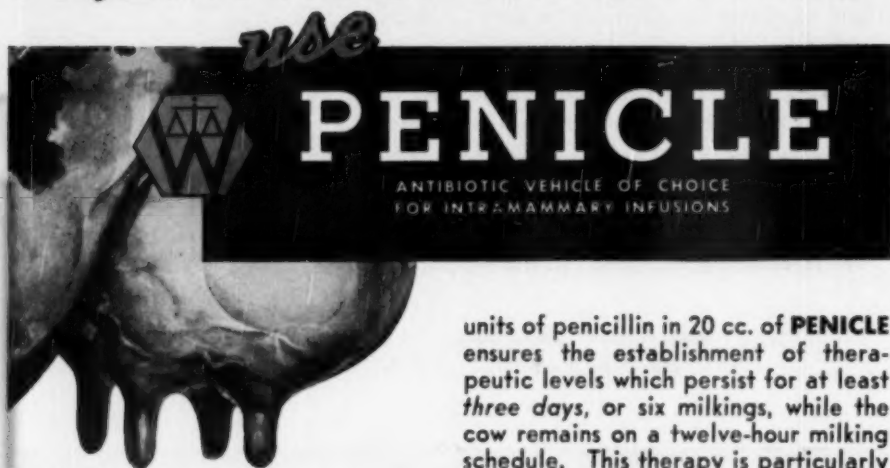
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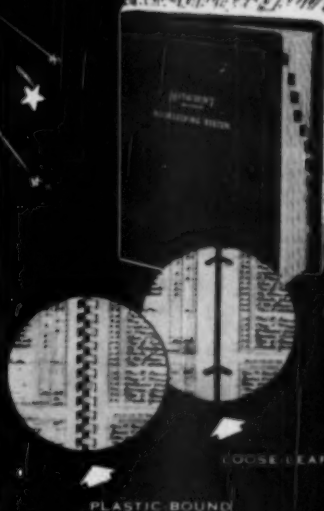
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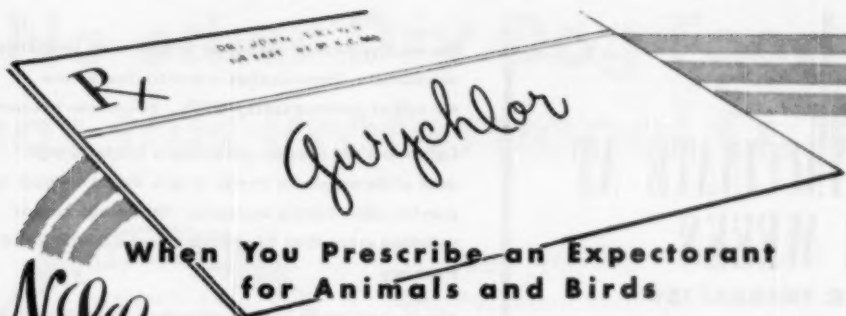
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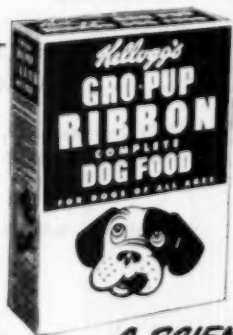
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100's.	\$28.00

MASTICS with Streptomycin

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100's.	\$18.00

*caused by Strept. agalactiae, B. coli, Aerobacter aerogenes.

"Mastics" Reg. U.S. Pat. Off.

The Martin Laboratories
West Chester, Penna.

Friskies

Authoritative information on the scientific care and feeding of dogs. Published by Albers Milling Company (a division of Carnation Company) under the supervision of Dr. E. M. Gildow, B.S., M.S., D.V.M., Director of Research.

No. 4

DOG RESEARCH NEWS

Care of a Bitch During Pregnancy

Be sure to prepare a whelping pen or box 10 days before the whelping bitch is due. At first she will probably ignore the box, even sleeping or sitting as far from it as she can get. But when labor starts, she will usually accept this convenience. For the small breeder, a box may be used for whelping, but the better system is to have a pen (see cut). It is important that during pregnancy, we keep the bitch in peak condition by feeding her a good ration. Many famous mothers have whelped famous sons and daughters on a prenatal diet of Friskies — a nourishing, complete dog food.

NOTE: It goes without saying that if any complications arise it is important to consult your veterinarian.



When to Worm a Puppy

Puppies can be wormed as early as the third week, but it is preferable to wait until they are completely weaned at the sixth week. The treatment should be repeated 8 to 10 days later, and this double treatment given at intervals of approximately every two or three months until the dog matures. This treatment, properly given, will cause

no harmful effects and will permit the animals to develop normally. For extra assurance of normal development, be sure to feed Friskies from weaning time.

Selling a Dog

Here's how to get the best possible picture for advertising a dog: (1) Trim and brush the dog carefully, (2) pose him in front of plain background which contrasts with his own color, and (3) when ready to take the picture, mystify him with a quick-moving object some distance away. His stance and expression should say: "What's that?"



"What's That?"

There is no substitute for a skilled veterinarian. But if you have any questions on the breeding, feeding and care of dogs, send them to: Friskies, Dept. V, Los Angeles 36, Calif. The knowledge of our 50 years of experience in animal nutrition is yours for the asking.

Friskies Question Box

Question: What surface is recommended to give new pups the proper footing?

Answer: A piece of burlap or similar rough material, tacked to the floor of the whelping box.



NO SUPPLEMENTS
NEEDED WHEN
YOU FEED

5 Sizes:
50, 25, 10, 5, 2 lbs.

Friskies

• A COMPLETE DOG FOOD •

A FRISKY DOG IS A HEALTHY DOG

BENZEFET
*Cardiac-respiratory
stimulant*



► "The data obtained by intravenous administration of Benzetet on dogs at a dosage rate of 0.1 cc. per 10 pounds body-weight indicate that it is far superior to other products which we have tested as cardiac and respiratory stimulants."^a

FORT DODGE BENZEFET

Indicated in animals depressed as a result of disease conditions or drug action. Safely nontoxic—easily administered parenterally—provides a relatively long period of action.

Supplied in vials of 30 cc.

Fort Dodge Laboratories, Inc., Fort Dodge, Iowa.

^aFrom a report of experiments on the effectiveness of various stimulants. Fort Dodge Bio-Chemic Review (Fall, 1950).

FORT DODGE

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The President's Address

C. P. ZEPP, SR.

New York, New York

ONE OF the duties of the president of the American Veterinary Medical Association is to deliver an address at the Opening Session of the annual meeting. In this address, he is not restricted to a specific topic, but I feel the members expect him to report on the status of the profession and the conditions influencing it as he has observed them in his travels over the country attending veterinary meetings.

In my travels, I have had an opportunity to observe and discuss veterinary problems with men of the profession and allied groups. From these observations and discussions, an over-all picture of veterinary medicine may be visualized. This information may be of value for the guidance of our organization.

Here I wish to explain that I assume we still have the right of free speech, and that the president of an organization during the term of his office is free to, and should, express his personal observation and views at his own risk of criticism, rather than to expound the association's historical dogma and aspirations. Too often a president's swan song is a rhetorical exposé of the good things an organization or profession has done. We all know that a person, as well as an organization, which sits back and prides himself or itself on its accomplishments soon deteriorates.

I am not going to deal with our scientific accomplishments as veterinarians; time would not permit and besides our ac-

complishments speak for themselves, but rather I will deal with policies which may influence the future of our profession.

A study of the veterinary profession with a thought of planning for its future course is important in these rapidly chang-



Dr. C. P. Zepp, Sr.

Address delivered at the Eighty-Seventh Annual Meeting of the American Veterinary Medical Association, Miami Beach, Aug. 21, 1950.

ing times. The truism that "times are changing" has always been applicable. However, the speed and type of change has not been constant. I think you will all agree that the tempo of change has greatly increased during the last decade and will probably continue during the next. Evolutionary change imposes progress on man. Progress is not an accident; it is a necessity. A medical profession such as ours can not advance only in the scientific fields; it must advance, as well, in the application of its scientific knowledge. We must have a balanced progress. If we do not, we are likely to find ourselves behind the eight ball, rich in theory and poor in application. This will result in a loss of our prestige as now enjoyed and the ability to render efficient veterinary service.

The following are some of the changes I recognize which will affect the veterinary profession and the type of veterinary service of the future:

The selection and education of the future veterinary personnel.

The rapid development of preventive medicine. The rapid development of therapeutic agents and their distribution to laymen.

The increased interest of the state and federal governments in disease control.

The increased monetary and nutritional value of livestock and livestock products.

The rapidly increasing population of this country and the world.

The increased practice of veterinary medicine by humane organizations under the guise of preventing cruelty.

The socialistic trend of society.

The veterinary profession must recognize these changes and plan to meet them.

THE IMPORTANCE OF THE VETERINARY PROFESSION

Our profession holds an important place in society in two ways: First, we are the guardians of the health of the animals of the nation, and second, we are the first line of defense in preventing the spread of communicable diseases from animal to man. These obligations make us indispensable for the defense of our nation, which is so necessary at the present time. Lord Boyd Orr of Aberdeen, Scotland, winner of the Nobel Peace Prize, said at the opening of the International Veterinary Congress in London last year: "A good food supply and reserve is the best defensive measure

a nation can have." The fact that we are the guardians of the health of the animals of the nation makes our profession the keystone of the livestock industry. We should show our government and the livestock industry that, by conserving the life of animals, we increase livestock products, and by maintaining their health we increase their efficiency. Again quoting from Lord Boyd Orr: "One healthy cow is worth 10 diseased cows."

The economic and health value of a healthy livestock industry to a nation and its people is often under-estimated. The value of the livestock industry of the United States is estimated to be a multi-billion dollars. It is estimated that the livestock industry constitutes about 50 to 60 per cent of the agricultural industry. Not only is a healthy, plentiful livestock industry necessary for a sound economy of a nation, but it is more necessary for the health of its people. For fear our government in its dilemma of world affairs should forget the value of the livestock industry, we should at all times impress upon them the importance of maintaining an adequate livestock food supply for its people, for their health, and to prevent unrest. We should point out to them that a nation with an adequate supply of meats, milk, eggs, and other livestock products is far superior to a nation whose food supply is principally cereals, such as the nations of the Orient. We must stress the important part livestock plays in rehabilitating the fertility of the soil while transforming grains and grasses into livestock products. We must bring to their attention the increased need for livestock products as our population increases.

Our second important duty, by which we serve our country in preventing the spread of communicable diseases from animal to man, has not been fully recognized by our government nor by the people. It has not been fully recognized by our profession, or we would not have neglected the public health work as we have. We should immediately take steps to inform our citizens of the important service the veterinary practitioner renders in diagnosing in animals such diseases as tuberculosis in cattle, rabies in dogs, anthrax, ringworm, and many others. In fact, there are estimated to be about 80 diseases communicable from animal to man. The vet-

erinary practitioner, in the field, stops the spread of these diseases from animal to man at the source of infection. Too often, the regulatory bureaus take credit for this work rather than giving the practitioner credit and, as a result, the people feel the state is doing the work. By publicizing the service rendered by the practitioner, we will demonstrate our qualifications for more of the public health work.

THE RESPONSIBILITY OF THE VETERINARY PROFESSION

The national veterinary organization of a country is the spokesman for veterinary medicine of that country. It must take full responsibility for the success or failure of veterinary service. Today, unparalleled power rests in the hands of various government departments. The government departments are influenced by powerful organizations such as farmers groups, unions, and societies. These organizations, through influence, can foster or deter a small profession such as ours for their benefit. It is the responsibility of our organization to inform the government or government departments of the best methods by which our profession will be able to render the efficient veterinary service required by the livestock industry, and of the part we should play in maintaining the health of the people. We must make clear to them that we are the ones, qualified by education and experience, to plan and render this veterinary service. The advice or influence should be exerted by the whole profession rather than by the heads of govern-

mental agencies, since the heads of departments are political appointees, and look to these groups for their appointment. Also, few of them ever have had experience in practice, where the success or failure of plans will be determined.

Realizing the need for an active organization to act as spokesman for the veterinary profession, when I assumed office a year ago at our annual meeting in Detroit, I said my program for the year would be devoted to an attempt to correlate the diversified activities or branches of our profession into a well-balanced organization—an organization so constituted that it will demand thorough discussion of veterinary policy. Our profession is too diversified and specialized into branches of service for any one man or group in a specialized field to make decisions of policy for the whole profession.

Too often do our elected officers or heads of departments assume the responsibility to make important decisions on policy, rather than to realize that they were selected or elected to the office to act as a governor or balance for the department or organization after thorough discussion by its members. This appears to be a general idea of officials today and has been done too often by them.

The need for a discussion of policy with a view to planning for the future of veterinary medicine was vividly called to my attention during my trip to Europe last summer to attend the International Veterinary Congress. In Europe, I saw countries lacking wholesome livestock prod-

Opening Session, Miami Beach Session, Aug. 21, 1950



ucts, milk, meat, eggs, etc. to properly feed their people; countries in which the milk must be boiled before it can be used because a large percentage of the cattle are diseased. For example, in England, the percentage of tuberculous cattle, according to various estimates, ranges from 30 to 50 per cent; there is no estimate for brucellosis. In Spain, from 80 to 90 per cent of the cattle are tuberculous. There were no figures available to estimate the over-all lack of veterinary service in the field, but if it compares with the diseases mentioned, it is great. The fact that the milk produced in these countries must be boiled before it is fit for human consumption is not the only serious problem; the fact that these countries are importing a large percentage of the feed for these diseased cattle, which we all know are inefficient in production, results in a loss of food and money. The inefficiency of practical application of veterinary service in these countries affects them in two ways—underfed people and unstable economy.

The conditions above described were observed in the large animal field of veterinary practice; similar conditions exist in the small animal field. For example, in the city of London, there are estimated to be five quacks, or "Mr. veterinarians" as they designate them, licensed to practice veterinary medicine, to one licensed graduate small animal practitioner. There were no figures available to estimate, nor had I an opportunity to determine the type of veterinary service rendered by the licensed quack; however, you can judge.

Now these conditions of poor veterinary service in the field, resulting in the lack of livestock products for food and unstable economy, exist in countries where veterinary medicine is a lot older than it is in our country. Some of you may say that they went through wars and that is the reason for their poor veterinary service. In answer to that I will say, from what I could find out, these conditions existed before the war. If anything, wars should have increased veterinary proficiency.

The only cause I could find for the inefficient veterinary service in these countries of Europe was poor judgment on the part of the veterinary organization, since they have almost absolute power in deter-

mining the policies for veterinary medicine. The program at the Congress, which consisted of research and control papers, demonstrated to me that these countries have plenty of research knowledge to eradicate these diseases. The fault appears to be that they do not know how to apply their research. There appears to be a zone, uncovered, between the practitioner who must apply the veterinary knowledge in the field and the researcher and educator. Either the research knowledge is not applicable in the field or the available practitioners lack the ability or art of applying it. In my judgment, I would hold the veterinary organizations of these countries responsible for the conditions which exist there, since they are the spokesmen for the veterinary profession. I feel they need clinical research and a correlation between research and practice.

If one analyzes the veterinary organization of these countries, one finds that the organization has been controlled and in the hands of the educators, regulatory, and research men, with very little participation by the practitioners. The policies for veterinary medicine were determined by this group, who had no experience in practice. They are now planning to establish animal health centers to help correct this condition. I do not believe the animal health centers will be any improvement, since they will be under the control of the same group. Another reason why I do not believe the health centers will improve the veterinary service in the field is because they plan to use them to train more lay help. In my opinion, the more lay help and quack veterinarians used to render veterinary service, the poorer the service will be.

THE PRACTITIONER

The scientific administration of drugs and biological products to animals, to save their lives and to restore them to health for food and efficient production, is the basis of a veterinary profession. The practitioner, who renders this service, becomes the foundation of veterinary medicine and must at all times be capable of doing an efficient job, or veterinary medicine will be a failure. Members of the veterinary profession must wake up to the fact that the qualifications required to

efficiently practice veterinary medicine in the field must be as good or better than in any other branch. The practitioner can not delay and depend on the laboratory or records and textbooks when rendering service. I often think of a statement made by one of our famous humorists, Will Rogers, to the effect that when he took sick, he was going to a veterinary doctor because they are trained to find out what is wrong rather than have the patient tell what is wrong. He was referring to the veterinary medical practitioner.

To make sure the practitioner can always do a good job, he must not only be a qualified man, but he must help guide the profession in its over-all planning. He is the one best able to visualize the needs in the field. He is the only one who can judge whether a plan instituted will be applicable with available personnel. If he is unable to render the service as planned, the results will be a failure. Also, if the practitioner is unable to carry out the veterinary service in the field as planned, it causes confusion not only among the profession's members but to the public, reflecting unfavorably on the whole profession.

THE NEED FOR PLANNING

I referred to veterinary medicine of the European countries to stress the need for

planning for the future of veterinary medicine. Another example of the need to plan for the future is the condition in which our country finds itself today in Asia, fighting a defensive war. According to George M. McCume and Arthur L. Gray, Jr., American specialists on Korea, in their book, "Institute of Pacific Relations," "The American record in Korea shows the virtues and weaknesses of our postwar approach in Asia. First and foremost, it was unplanned. The Russians proceeded quite differently—they planned every step."

So far, here in the United States, our profession has met the needs for veterinary service in the field quite well. However, I can see signs of trouble developing for our profession. Examples are the lack of veterinary personnel to supply the needs for veterinary service in the field, resulting in the agitation to train lay help. We know the needs of the Army and the U. S. Public Health Service. According to Deputy Surgeon General W. Palmer Dearing, who spoke to us at the annual meeting in Detroit, a minimum of 1,400 veterinarians are needed by the Public Health Service in the United States. We know the poultry disease problem. We know about the controversy between the practitioners and the regulatory men over the brucellosis program as now set up. We recognize the socialistic trend of our federal and state regulations.



Opening Session

Eighty-Seventh Annual Meeting

Miami Beach, Aug. 21, 1950

I am not qualified to say definitely why these problems confront our profession, nor to suggest a solution, but I do feel that in order to solve them satisfactorily and plan for the future, a thorough study of veterinary service in the field, which is the foundation of veterinary medicine, must be made. The practitioners must take an active part in this study since they must be able to render the service. The study should include the selection of our veterinary students and their education. It should include the public health and neglected fields; also the regulations instituted for the federal services. We can not delay any longer to correct these conditions.

THE SOCIALISTIC TREND OF VETERINARY MEDICINE

Time will not permit me to discuss in detail this trend which we can all recognize in our government today. However, I wish to put our profession on its guard. We recognize the fight the medical profession has on its hands. It is not necessarily a fight for socialized medicine, it is a fight for control.

We may never have, in veterinary medicine, an opportunity to make a direct fight against socialism or control, because we deal with an economic product. The government can, by its directions and regulations, take over our work. The owners of the product with which we deal are indoctrinated to socialism or control by subsidies now being paid. They will accept it. Thus, the government can instruct us to do it their way or leave it. A study of veterinary medicine, in some of our European countries, would clearly show us how easily that can be done. A study of the type of regulations we have today will clearly show us the trend in our country. We need to forewarn our government and regulatory men, who can influence this trend, that dictatorial veterinary medicine will be a failure. There are plenty of examples to show this. We should take an interest in this trend not only for the protection of the health of the animal kingdom, to which we have dedicated ourselves, but also for the protection of our American way of life.



At the Opening Session, Mrs. V. H. Miller, president of the Women's Auxiliary, Dr. W. M. Coffee, president-elect, Dr. C. P. Zepp, Sr., president, receiving the keys of the city of Miami Beach from Mayor Harold Turk.

VETERINARY EDUCATION

Today, as for the past number of years, our veterinary medical student personnel is being selected from a large group of applicants. All students who apply know



Dr. Maria C. Parajon, Havana, presents greetings from the women's auxiliary of the Cuban veterinary medical association to the convention at the Opening Session.

they must be in the upper bracket of scholastic standing or they will not have a chance of being selected, since their selection is based on their previous high school and preveterinary scholastic standing. Because of this fact, the majority of the applicants for entrance are students who were able to devote most of their time to studying and thus obtain high preveterinary scholastic standing, or students who can easily assimilate book knowledge. The selecting boards, composed principally of educators, few of whom have ever practiced, select this type of man because they want him to be able to carry the veterinary course prescribed by them. The increased veterinary course compels the educator to devote more time to technical studies in order to satisfy this type of student. The question we must consider is: Will the selection of this type of student, selected by the educators and educated by the course of study prescribed by them, give us a balanced veterinary profession for the future, a profession which will consist of enough practitioners who will be willing

and able to render ample economical veterinary service in the field of practice?

The veterinary profession must consider economics in rendering service, since it renders service to an economic product. Dependence on laboratory and technical equipment makes veterinary service in the field expensive. Our colleges should stress this fact in their teaching, and impress the student that his best armament for practice is his head, senses, and hands. Teach him to use the laboratory for diagnosis after he has exhausted the means God gave him. I don't want any of you to get the



Dr. O. A. Lopez-Pacheco, vice-president of the AVMA, welcomes in Spanish visitors from Latin American countries.

impression that I am against research and the use of the laboratory. I realize that they are necessary for progress. What I am trying to avoid is having the pendulum swing too far toward research and laboratory capabilities in the selection and teaching of our students, which will result in expensive veterinary service. Expensive veterinary service will lead us toward socialized veterinary medicine faster than any other factor I can think of. That is one of the reasons the medical profession finds itself in the predicament it is in today. I feel the policy of selection and education of our future veterinary profession deserves serious consideration by a balanced group of our profession. Too much power rests in the hands of a small group.

Another policy in the education field which will influence the future of veterinary medicine is being made today: The decision as to whether to attach our veterinary colleges to the medical centers now being formed in a number of states or to

small animal practice; (3) public health and Army; and (4) research, regulatory, bureau, and education.

Assuming each of the services mentioned are roots of our profession, where should the roots of these branches of veterinary medicine be founded to best qualify veterinarians to render efficient service. I think we all agree that veterinarians in all fields must be highly educated medical men. Would the large animal practitioner acquire more medical knowledge associated with a medical institution where he could assimilate medical knowledge firsthand, or associated closer with agriculture, with the possibility of being dominated by agriculture, the group who pay for his services. The attachment of this root (large animal practice) is debatable. It is debatable not only from the standpoint of acquiring veterinary medical knowledge, but also from the standpoint of the trend of the times toward subsidies and socialism. The veterinary profession need not think it



Dr. L. A. Merillat (right) receiving the AVMA award from President Zepp. Dr. Merillat, the second recipient of this award, was cited for his "fifty-seven years of service to the American Veterinary Medical Association as member, executive secretary, president, editor, and always-inspiring leader."

adhere closer to agricultural institutions. We had a number of opportunities, during the past few years, to attach ourselves to medical institutions. They were turned down. These decisions may have a great influence on the veterinary profession of the future, because the association, the environment, the indoctrination of the veterinary student will determine the veterinarian of the future. Our status as medical men may be at stake in this decision. I feel that these decisions deserve serious consideration by the whole profession, rather than by the institution heads who, through association with agriculture, may have a biased opinion.

If one studies the over-all picture of veterinary service, one will find the need for veterinary service in the following fields, presented in the order of their importance—(1) large animal practice; (2)



Brigadier General James A. McCallan, V.C., addressing the convention at the Opening Session on the military situation as it pertains to the veterinary profession.

can escape control if the groups it is associated with are under control.

I don't think there is much argument as to where the second root, small animal practice, and the third root, public health and army, should be attached. Both these roots would gain from closer association with medicine. We, in the small animal field, can readily visualize the value of the association with a medical institution. I think the scarcity of veterinarians in the public health field would be solved by closer association with the medical profession.

The fourth root, research, regulatory, bureau, and education, by close association with a medical institution, would not only gain by their association with the medical profession but would avoid a lot of duplication in research. The association of the last three roots with a medical institution would save the taxpayers a lot of money by preventing duplication in these fields.

I think a closer association of the medical and veterinary medical profession would be advantageous to both groups, since we have a mutual interest — that of maintaining the health of the people. We recognize the trend of medicine, today, is to prevent disease by proper diet and im-

munology. The task of the veterinary profession is to save the life and increase the efficiency of the animals which produce the required diet, as well as to prevent the



President C. P. Zepp, Sr., delivering his address at the Opening Session of the Miami Beach Session.



Dr. Earle D. Clawson, chairman of the Local Committee, Miami Beach Convention, addressing the convention.

spread of communicable diseases from animal to man. The use of drugs and biological products to obtain this ultimate end is the same. If one studies the obligations of the two professions, one can readily recognize the advantages of a closer association. The biggest advantage I can visualize for the veterinary profession is that it would advance the standing of its members as medical men.

PUBLICITY

The veterinary organization has the important task of bringing to the attention of the public the value of the veterinary profession, not only for its own benefit but for the benefit of the people. We must show our economic value to the public. We must call to their attention that by saving the life of an animal, we not only prevent a loss to the owner but we save the all-important livestock products for humanity. The over-all figures showing the economic loss prevented, and the livestock products saved by us for human consumption, would be enormous. These figures

would be valuable publicity material. They would help us combat the indiscriminate purchase of therapeutic agents, and self-medication by the livestock owner, which result in a loss to the livestock industry. Through these figures, we can inform the



Dr. James Farquharson receives the Borden Award from Mr. W. A. Wentworth of the Borden Foundation. Dr. Farquharson was cited for his "researches in postparturient hemoglobinuria, calf diphtheria, actinomycosis, and actinobacillosis, and many important contributions to surgery for all species of animals, including cattle."

owners of animals the value of an accurate diagnosis at the onset of a disease, and the loss by recklessly administering expensive therapeutic agents.

I advised, as a project for the Veterinary Services Committee appointed by me last year, that a study of our economic value to the livestock industry be made. Dr. E. J. Frick, chairman of this committee, is doing a good job. I hope the committee will continue on this project, and that if it needs financial assistance to obtain statistical information, such will be granted by our organization. Information of this nature will be valuable for every veterinarian, but particularly so for the practitioner. He will have figures to show his value. It will bring public relations down to the foundation of veterinary medicine, the practitioner, where we need it.

CENTRAL OFFICE AND STAFF

The work of our central office is growing daily, due partly to the increase of membership, but mostly to the increase of services required by our profession, the government, and allied groups. The increase of services required from our central office by our members is a natural progress of the times. This natural progress is, however, greatly accelerated due to the rapidly changing times. The importance of the services our profession renders to the people and the position the AVMA has attained makes our organization the logical source to supply the government and allied groups with information pertaining to veterinary medicine. This requirement has increased greatly.

The central office work is directed by your elected and appointed officers. It can not be held responsible for conditions which may not be satisfactory to every veterinarian. It is the responsibility of the membership at large to unify decisions on policy so that your executive officers know your wishes. The executive officers will, in turn, see that your wishes are carried out by the central office.

During the past year, the Board of Governors instructed the executive secretary to have a survey made by a management consultant. I am glad to report that the survey showed that our central office was functioning efficiently. A number of constructive suggestions of methods and office procedures, together with recommendations for improvement, were made. These changes will be put into effect. The Board of Governors feels this was a worthwhile survey, not only to increase the central office efficiency, but for the satisfaction of knowing that our organization's money has been well spent.

One recommendation, to increase our office space, has been acted upon. The Board of Governors has approved a lease for additional office space, in the same building and at the same rental. This, I think, is very satisfactory, and will add to the efficiency of our central office.

PUBLICATION

It was recommended, and favorably acted upon by the House of Representatives, that the complete proceedings of our



Incoming President W. M. Coffee, LaCenter, Ky., receives gold key from Executive Board Chairman W. G. Brock.



Retiring President C. P. Zepp, Sr., receives congratulations from Executive Board Chairman W. G. Brock after presentation of service scroll.

annual meeting be compiled in one volume. This procedure will start with this meeting. I think it is a very good move, and will benefit the veterinarians. However, it will require cooperation by the meeting speakers if the proceedings volume is to be published before it is old stuff. Speakers will have to cooperate with the editor by submitting their material at an early date.

Compiling the complete meeting in one volume will give more space in the JOURNAL for current and practical material. Here again, the membership will have to play its part and submit material. The quality of the JOURNAL will be as good as the quality of the material the editor can obtain.

ORGANIZATION

To make sure that our organization has a constituted group of members to thoroughly study veterinary policies and plan for the future of veterinary medicine, I have recommended and presented for the action of our House of Representa-

tives that a standing committee be appointed by the House of Representatives from the House of Representatives for this purpose. The committee shall be named "The Executive Committee of the House of Representatives," the members to be selected from the various services or branches of our profession. I hope this committee will be active as advisory counsel for members of the House of Representatives who are, in the last analysis, responsible for the future of veterinary medicine, since they make the final decisions.

EXECUTIVE BOARD

During my time of service to our organization, in the different constituted executive bodies, I have observed that our organization needs better representation from the different fields or services of our profession. The present methods of selecting the members for the Executive Board very often results in some branches of our profession not having representation. This, I think, is a bad condition and is the reason why some of the branches of veteri-

President's reception and dance held in the



nary service form their own organizations independent of our national association.

I feel all fields of service should be represented on our Executive Board, the administrative body of our organization. A member elected from a particular branch is the only one who can properly represent a specialized branch of service. Also, I feel it is the only method by which we can really have a representative organization and the only way we can satisfy all branches and maintain a united organization.

To correct the conditions mentioned and to make sure each branch of veterinary service has a member on our Executive Board, I suggest for the consideration of the Executive Committee of the House of Representatives, that the members of the Executive Board be elected as follows: one member from large animal practice; one member from mixed practice; one member from small animal practice; one from the bureau, regulatory, education, and research veterinarians; one from the Army, public health, and allied groups; and one from the House of Representatives.

The member from the House of Representatives would act as chairman of the House of Representatives, and preside over that body. A member of the Board elected from these groups can intelligently represent his group on our administrative body, the Executive Board. They will be able to present their problems more thoroughly, and thus obtain assistance in solving them.

SECTION MEETINGS

The various sections of our Association should have more autonomy to elect their officers. They should be allowed to plan and run their section during our annual meeting so long as they abide by certain regulations. This will allow a section to have continuity, thus aiding it to study and solve within its own group many of its problems. More autonomy will stimulate interest in the sections, and that, in turn, will stimulate more interest in the national association. It will make it unnecessary for branches of our profession to form their own organization. It will aid in holding our Association closer to-

Auditorium during the Miami Beach Session



gether, which is very important considering there are only about 16,000 veterinarians in the United States. I recommend this for the consideration of the Executive Committee of the House of Representatives.

Time will not permit me to discuss all the problems confronting the veterinary profession, nor have I been able to outline any specific course; however, I hope I have stimulated foresight which is defined as "heedful thought for the future." I hope

the future administrations will give serious thought to the effect of decisions before they make them.

I want to take this opportunity to thank the officers, committees, and members of the staff for their cooperation during my time in office. I want to express my appreciation for the honor given me by this association. It has been a pleasure for me to serve you all. I know that you will extend the same cooperation and courtesies to our next president.

President-Elect and Other Officers Named at Miami Beach

Dr. John R. Wells, Palm Beach, Fla., was named president-elect of the American Veterinary Medical Association at the eighty-seventh annual meet-



Dr. John R. Wells

ing in Miami Beach. He succeeds Dr. W. M. Coffee, LaCenter, Ky., who assumes the AVMA presidency for the coming year.

Dr. Wells, born Feb. 23, 1894, in Falls Church, Va., was educated in the Virginia and Washington, D.C., schools, and the University of Pennsylvania School of Veterinary Medicine, receiving his V.M.D. degree in 1922. After a few months spent

in dairy inspection in Texas, he joined the Angell Memorial Animal Hospital staff in Boston and served there until 1924. In 1925, Dr. Wells went to Palm Beach, Fla., to enter general practice, and concurrently served Palm Beach and West Palm Beach as meat and dairy inspector. In 1935, he began to specialize in small animal practice in West Palm Beach. Dr. Wells was president of the Florida Veterinary Medical Association in 1935, and for four, four-year terms, was a member of the Florida Board of Veterinary Examiners, and chairman for three terms. He served as a member of the House of Representatives of the AVMA for three years (1937, 1938, and 1939).

Dr. and Mrs. Wells, with their two sons, 12 and 14 years old, live in Palm Beach. The hospital is located in West Palm Beach.

The vice-presidents elected are Drs. Howard F. Fleming, Louisville, Ky., *first vice-president*; J. A. Campbell, Toronto, Ont., *second vice-president*; Niel W. Pieper, Middletown, Conn., *third vice-president*; Angel M. Morales, Havana, Cuba, *fourth vice-president*; and W. T. Hardy, Sonora, Texas, *fifth vice-president*.

Dr. W. A. Young, Chicago, Ill., was reelected treasurer.

State Association Secretaries

On Monday evening, Aug. 21, 1950, at the Miami Beach Municipal Auditorium, the first annual meeting of state association secretaries was held, with Dr. C. D. Van Houweling, AVMA director of professional relations, acting as chairman. Dr. A. G. Misener, Chicago, Ill., was elected chairman, and Dr. F. J. Kingma, Columbus, Ohio, was elected secretary of the group for the coming year. The function of this organization is to assemble information of mutual interest to state association secretaries and discuss the problems handled by those holding such offices.

Those present, and states and districts they represented, were Drs. I. S. McAdory (Alabama); J. A. Pulliam (Arkansas); C. E. Wicktor (California); G. H. Gilbert (Colorado); N. W. Pieper

(Connecticut); E. L. Symington (Delaware); C. A. Manthei (District of Columbia); V. L. Bruns (Florida); Chas. C. Rife (Georgia); A. G. Misener (Illinois); C. Harvey Smith (Indiana); F. B. Young (Iowa); K. M. Curtis (Kansas); Ross Brown (Kentucky); W. T. Oglesby (Louisiana); L. B. Denton (Maine); John D. Gadd (Maryland); C. Lawrence Blakely (Massachusetts and New England); B. J. Killham and F. D. Egan (Michigan); H. C. H. Kernkamp (Minnesota); R. H. Stewart (Mississippi); J. L. Wells (Missouri); Fred Allen (New Hampshire); J. S. Halat (Miss.) and F. F. Fehr (New York); Fred J. Kingma (Ohio); Raymond C. Snyder (Pennsylvania); A. A. Husman (Southern V.M.A.); Dennis Coughlin (Tennessee); E. A. Grist (Texas); and H. Garcia Crealona (Cuba).

A summarization of replies to a questionnaire mailed to state association secretaries by the AVMA office was distributed and discussed. These questions pertained to duties of, and compensations for, secretaries; time, frequency, and type of meetings held; number of state association publications; and association dues.

It was decided that the chairman and secretary should send each state association secretary a questionnaire requesting information relative to the handling of exhibitors, the number attending their meetings, the number of meetings held, type of entertainment offered, and similar facts.

Several speakers appeared before the group. Dr. J. L. Davidson, president of the American Veterinary Exhibitors' Association, outlined some suggestions which exhibitors felt would aid in the presentation of exhibits.



AVMA Exhibit at the San Francisco Meeting of the American Medical Association, June 26-30, 1950

Drs. E. C. Bland (left) and N. T. Fried, San Francisco practitioners who assisted Dr. C. D. Van Houweling at the exhibit. Other veterinarians assisting were Drs. R. L. Stowe and H. F. Carroll, of San Francisco.

Dr. S. F. Scheidy, Drexel Hill, Pa., presented the report of a committee of the Executive Board relative to the travel of AVMA representatives to meetings of constituent associations.

Dr. A. R. Miller, Falls Church, Va., veterinary consultant to the National Security Resources Board, informed the group of their responsibility with respect to civilian defense. Dr. Asa Winter, Arlington, Va., who will soon take over Dr. Miller's duties on this Board, was introduced.

Dr. J. H. Steele and Dr. W. T. S. Thorp, U. S. Public Health Service, Atlanta, Ga., discussed the U.S.P.H.S. activities in civil defense and how they plan to cooperate with state secretaries in carrying out their projects.

Brig. Gen. J. A. MacCallum discussed the problems facing his office at the present time relative to the procurement of officers for active duty. He requested the cooperation of state association secretaries in the procurement of personnel.

s/F. J. KINGMA.

Student Chapter Representatives

The second annual meeting of representatives from student chapters and clubs was held in the Delano Hotel the evening of Aug. 22, 1950, with 14 student representatives and six faculty advisors, representing 12 schools, in attendance.

Officers of the AVMA and Women's Auxiliary who spoke at the dinner which preceded the business meeting were: Mrs. V. H. Miller, Mrs. Dennis Coughlin, and Mrs. H. S. MacDonald, representing the Auxiliary; and Drs. W. M. Coffee, W. G. Brock, W. A. Young, J. G. Hardenbergh, and C. D. Van Houweling from the AVMA. Seven representatives from the faculty of the School of Veterinary Medicine, University of Havana, Cuba, were special guests at the dinner.

Those present were: Mr. Charles W. Winslow, University of Minnesota club; Mr. and Mrs. Keith R. King, Kansas State College chapter and auxiliary; Mr. and Mrs. Alan R. Raun, Iowa State College chapter and auxiliary; Dr. and Mrs. George R. Fowler, Iowa State College, faculty adviser; Mr. and Mrs. Mark E. Davenport, Jr., Ohio State University chapter and auxiliary; Mr. and Mrs. Clyde Slay, Texas A.&M. chapter and auxiliary; Mr. Roderick R. Parker, Oklahoma A.&M. club; Dr. J. W. Wolfe, Oklahoma A.&M. club, faculty adviser; Mr. Monte Swartzell, Texas A.&M. chapter; Dr. W. J. Gibbons, Alabama Polytechnic Institute, faculty adviser; Mr. Worth Lanier, Alabama Polytechnic Institute chapter; Mr. and Mrs. Eugene Morgan, Alabama Polytechnic Institute chapter and auxiliary; Mr. Carl P. Huff, University of Pennsylvania chapter; Dr. E. F. Thomas, University of Georgia, faculty adviser; Mr. and Mrs. Earl L. Knox, University of Georgia chapter; Dr. and Mrs. L. E. St. Clair, University of Illinois, faculty adviser; Mr. and Mrs. E. E. Lutz, University of Illinois club; Mr. and Mrs.

C. C. Clark, University of Missouri chapter and auxiliary; Dr. Cecil Elder, University of Missouri, faculty adviser; Mr. and Mrs. John S. Baker, Cornell University chapter and auxiliary.

At the business meeting, at which Dr. C. D. Van Houweling presided, the following items were discussed: (1) program material available from the AVMA; (2) new proposal for JOURNAL subscriptions; (3) standards for maintaining membership in good standing; (4) offer to print classified advertisements in the JOURNAL for students seeking employment; and (5) items from the representatives. Several interesting subjects were suggested for discussion, such as the adoption of the honor system, sources of income for chapters and clubs, and program material.

Dr. A. R. Theobald, chairman of the AVMA Humane Act Award Committee, and Dr. W. M. Coffee asked the delegates to support the Humane Act Award by submitting nominations either as individuals or organizations.

Public Relations Conference

The second annual AVMA Conference on Public Relations, under the chairmanship of Dr. A. H. Quin, featured an open forum type of program that was high-lighted by discussions of television and the planning of effective state association public relations programs. Twenty-seven delegates representing state associations, state and

federal agencies, and Army and Air Force veterinary services gathered to hear these featured speakers and subjects:

Dr. W. A. Young, Chicago: "The Veterinarian's Role in Television."

Mr. L. R. Fairall, AVMA public relations counsel: "Effective Publicity for State, Regional, and Local Associations." This paper was read by Mr. J. J. Shaffer of the AVMA Public Relations Department.

Dr. C. D. Van Houweling, director of professional relations, Chicago: "The AVMA Public Relations Program" (with illustrations).

Dr. A. G. Madden, Madeira, Ohio: "The Ohio State Veterinary Medical Association's Film on Public Relations and Ethics."

In the lively discussion which followed the program, there were many valuable suggestions and recommendations for improving public relations projects at the state and local level.

Efforts will be made to have a representative of every constituent association in attendance at the 1951 conference.

Florida Team Champion Golfers

Drs. James B. Shotten and J. R. Simone of Florida, with a team score of 158, won the state team championship of the AVMA golf tournament held during the annual convention on the Bay Shore golf course in Miami Beach, August 22. They took possession of the AVMA trophy



Shown making a recording during the AVMA Convention to be broadcast on the NBC National Farm and Home Hour Program, Aug. 26, 1950, are (left to right) Mr. Paul Visser, NBC farm director; Dr. Harry Hodges, Ithaca, N.Y.; Dr. P. G. MacKintosh, Yakima, Wash.; and Dr. W. M. Coffee, president of the AVMA, LaCenter, Ky.

for the coming year, and were awarded individual trophies and electric Cory knife sharpeners.

Dr. Simone also won the individual championship (medalist) with a gross score of 75, for which he received an electric clock that also serves as a trophy in this division. Dr. T. W. Brown, Lake City, Fla., won an ice cube bucket trophy in the low net score division with a score of 73. Winner of the student championship, with a prize of one dozen golf balls, was Mr. S. R. Spesard, of Illinois.

Drs. B. J. Gray, Fort Dodge, Iowa, and R. H. Hollis, Chicago, Ill., tied for the exhibitors' championship with net scores of 73. Proof that there are honest people was furnished by Dr. C. S. Alvanos, Toledo, Ohio, who turned in his card with a score of 163 and was accordingly given the "duffer's" prize—three old, beaten-up golf balls.

Several others shared in the prizes of the "blind bogey" division. The enthusiastic response shown for this tournament forecasts plenty of stiff competition for the AVMA trophy next year.

Humane Act Award to Canadian Girl

Eleanor Mederak, 15, of Hamilton, Ontario, was named winner of the 1950 AVMA Humane Act Award for her "continuous, unselfish love for animals demonstrated by repeated acts of kindness" at the convention in Miami Beach in August. The presentation was made by Dr. R. J. Garbutt, chairman, Humane Act Award Committee.

As set forth in the citation, Eleanor has brought home countless lost or abandoned kittens and cats, fed them, and found homes for them. Two years

ago, when a puppy was about to be sent to a dog pound, she intervened and adopted it. Today, the dog shares her affection with another dog, Daisy, Eleanor's long-time pet. Eleanor often takes sick and injured dogs and cats to a veterinarian for treatment, then nurses the animals back to health.



Dr. R. J. Garbutt, chairman Humane Act Award Committee, made the presentation to Miss Mederak.

Every summer she rescues and feeds baby robins that have fallen from their nests. She also provides food for wild birds during the winter and cares for injured birds.

She once found a wild canary lying on a highway where it had been struck by a car. After feeding it with an eye-dropper for several weeks until it recovered, she released it. One befriend bird, a pigeon, refused its freedom when it recovered from a broken wing.

The AVMA makes the Humane Act Award annually after examining nominations submitted from all over North America. Eleanor will receive a \$100 U.S. savings bond in addition to a framed certificate.



Eleanor Mederak

Conference of Editors

The meeting of the editors of veterinary medical publications at Miami Beach was attended by representatives from student publications, house organs, and national journals. Dr. L. A. Merillat, editor-in-chief of the AVMA Journals, enunciated the fundamental rules he hoped all veterinary publications would adopt. Spirited discussions followed presentation of the papers. Speakers and their subjects were:

Dr. H. Preston Hoskins, Evanston, Ill.: "Editing for Easy Reading."

Dr. L. A. Merillat, Chicago: "Editorial Style."

Mrs. Helen S. Bayless, Chicago: "Presenting Material Attractively."

Dr. C. C. Rife, Atlanta, Ga.: "Editing a State Association Bulletin."

Mr. Worth Lanier, Auburn, Ala.: "The Problems of a Student Publication Editor."

Dr. J. LaVere Davidson, Kalamazoo, Mich.: "Protecting the Registered Trade Mark."

Dr. R. C. Klussendorf, chairman of the meeting, summarized the papers and the discussion. It was unanimously voted to continue to hold the editor's meetings at the annual AVMA conventions.

Those present at the conference were Dr. R. K. Anderson, Denver, Colo.; Mrs. Helen S. Bayless, Chicago; Drs. Dennis Coughlin, Knoxville, Tenn.; K. M. Curtis, Kansas City, Kan.; J. L. Davidson, Kalamazoo, Mich.; C. E. Wicktor, Los Angeles; F. F. Fehr, Buffalo, N.Y.; Chas. D. Folse, Kemah, Texas; Geo. R. Fowler, Ames, Iowa; V. W. Gesellchen, Omaha; E. A. Grist, New Braunfels, Texas; Miss J. S. Halat, Utica, N.Y.; Dr. H. Preston Hoskins, Evanston, Ill.; Mr. Edgar C. Kaplan, Auburn, Ala.; Dr. R. C. Klussendorf, Chicago; Mr. Worth Lanier, Auburn, Ala.; Drs. L. A. Merrill, Chicago; A. G. Misener, Chicago; Mr. Clyde E. Morgan, Auburn, Ala.; Dr. Carl J. Norden, Lincoln, Nebr.; Mr. Alan Raun, Ames, Iowa; Dr. Charles G. Rickard, Ithaca, N.Y.; Mr. C. Guy Stephenson, Goshen, N.Y.; Drs. John L. Wells, Kansas City, Mo.; Clifford Westerfield, Athens, Ga.; F. B. Young, Waukegan, Iowa.

Greetings from the Women's Auxiliary

Mrs. V. H. Miller, Charleston, W. Va., retiring president of the Women's Auxiliary to the AVMA, addressed the convention at its Opening Session as follows:

President Zepp, members of the American Veterinary Medical Association, and guests:

It is indeed a pleasure and a privilege to bring you greetings from the Women's Auxiliary

to the American Veterinary Medical Association.

It has been a happy experience to serve as president of the Women's Auxiliary. I am proud to serve an organization with objectives worthy of the support of all wives of veterinarians interested in the development of their husband's profession.

During this past year, the officers of the Auxiliary have worked under a new constitution. I am convinced of the efficiency of these new rules, and of the advantages of rules which cover the many activities of our organization.

The objectives of the Women's Auxiliary are these. First, we aim to assist the AVMA in advancing the science and art of Veterinary medicine. A little booklet describing the many ways in which a veterinarian serves his community, and of how necessary his services are to the welfare of our city and country areas, is available for distribution to all interested persons. The accredited veterinary colleges are listed. Through the distribution of this pamphlet, the Auxiliary works to accomplish part of its first objective—that of advancing the veterinary profession in its public relations.

To realize the second objective of the Women's Auxiliary—that of assisting veterinary students—the Auxiliary has established a Loan and Award Fund. A senior student in an accredited veterinary college may borrow up to \$200, with interest at 4 per cent. These loans have been the means of tiding many a young man over a tough spot. A more recent project has been the establishment of senior awards in all accredited veterinary colleges. This award of \$25 is given a student at the end of his or her senior year, and is made on a "special contribution which advances the standing of the veterinary college on the campus." The recipients of the awards were selected for accomplishments in an activity outside the curriculum of the veterinary college.

A third objective is to strengthen the bonds of friendship among women connected with the veterinary profession throughout the world. Mrs. Anthony E. Bott, past president of the Women's Auxiliary, has been in contact with the wives of veterinarians in many countries, and her efforts toward a better understanding among women all over the world was furthered by her election last summer in London as president of a newly organized body, The International Women's Auxiliary to the Veterinary Profession.

It is only through the conscientious work of the entire group, with each officer understanding the part her office plays in the pattern of the whole, that our organization can grow in strength and service. The joy and pride of my term of office has been the harmony and co-operation which has been evident between all members of the Board, for each officer has made her contribution to the work of our Auxiliary.



Mrs. V. H. Miller, retiring president of the Women's Auxiliary, presenting greetings from the Auxiliary at the Opening Session of the convention.

Highlights of the Eighty-Seventh Annual Meeting

Miami Beach, August 21-24, 1950

The new air-conditioned auditorium in Miami Beach was not complete as the convention opened, but remarkable progress had been made so that it was possible to hold the scheduled meetings. The uncompleted state of some of the meeting rooms did not seriously detract from the enjoyment of those attending nor from the quality of the programs presented.

ATTENDANCE

The official attendance was 1,790, made up as follows:

Veterinarians — members	835
Veterinarians — nonmembers	52
Total veterinarians	887
Women (531) and children (106)	637
Exhibitors (other than veterinarians)	113
Guests	111
Students	42
	<hr/> 1,790

Forty-five states (only Idaho, Montana, and Nevada were not represented), the District of Columbia, Canada, Cuba, and Puerto Rico accounted for most of the registration.

In numbers, Florida led with 290, followed by Georgia and Illinois with 114 each, Ohio with 98, and New York with 91.

In the House of Representatives, 52 out of 59 constituent associations were represented.

The complete geographic distribution of registrants follows:

Alabama	76	Indiana	57
Arizona	2	Iowa	56
Arkansas	9	Kansas	41
California	21	Kentucky	14
Colorado	8	Louisiana	17
Connecticut	16	Maine	7
Delaware	4	Maryland	24
District of Columbia	47	Massachusetts	14
Florida	290	Michigan	58
Georgia	114	Minnesota	27
Illinois	114	Mississippi	32
		Missouri	73

Nebraska	12	Washington	5
New Hampshire	2	West Virginia	6
New Jersey	23	Wisconsin	33
New Mexico	2	Wyoming	1
New York	91	Canada	18
North Carolina	20	Australia	1
North Dakota	7	Bahamas	2
Ohio	98	British West Indies	1
Oklahoma	30	Cuba	70
Oregon	2	Iraq	3
Pennsylvania	42	Japan	1
Rhode Island	4	Canal Zone	4
South Carolina	27	Mexico	2
South Dakota	6	Peru	1
Tennessee	33	Puerto Rico	14
Texas	56	Sweden	1
Utah	3	Venezuela	3
Vermont	6	Virgin Islands	1
Virginia	39		
Total			<hr/> 1,790

Among the outstanding events of the week, a few can be selected only at the expense of others which are equally important to specialized groups.

The military situation was a topic of great interest wherever a group assembled. Because of the activity in Washington on this phase, the story changed from hour to hour. The present status of reserve officers and Army Specialized Training Program graduates is being reported elsewhere in this JOURNAL.

In the convention itself, a highlight was the 14 educational exhibits on display in the foyer. The color and range of these booths made this the outstanding group of any recent convention. A trio of judges awarded first place to "Rabies Control" which was prepared by the Office of the Surgeon General under the direction of Lt. Col. F. A. Todd. Second place went to "Epidemiology of Q Fever," prepared by the National Institutes of Health under the supervision of Dr. R. J. Huebner. Third place was awarded to "Epidemiology of Human Brucellosis" presented by the Communicable Disease Center under Dr. J. H. Steele.

The House of Representatives and the Executive Board voted honorary member-

ship to Mr. Robert Henley for his work in clarification of hog cholera serum and in the production of tuberculin.

Section officers nominated by the several sections and appointed by President W. M. Coffee are: Surgery and Obstetrics—J. F. Hokanson, Auburn, Ala., chairman, and G. A. Gettelman, Hartford, Wis., secretary; Poultry—C. W. Barber, Athens, Ga., chairman, and J. O. Alberts, Urbana, Ill., secretary; Small Animals—C. L. Miller, Oak Park, Ill., chairman, and W. H. Riser, Skokie, Ill., secretary; Research—C. A. Manthei, District of Columbia, chairman, and L. M. Hutchings, Lafayette, Ind., secretary; Public Health—L. R. Davenport, Springfield, Ill., chairman, and D. L. Lichty, Madison, Wis., secretary; General Practice—J. L. Hopping, Sr., Atlanta, Ga., chairman, G. W. Jensen, Antioch, Ill., secretary.

These section officers will assemble a program for the 1951 convention which will be held at Milwaukee, August 20-23.

The shortest speech of the convention was made by Dr. C. E. Bild, chairman of the Section on Small Animals. His greetings consisted of the single word "Welcome."

The top feature of the entertainment program was the aqua fiesta on Monday night. The swimming, diving, and water ballet were excellent and the lighting was colorful. For those who arrived late for the first show and those who stayed to dance after the fiesta, the mosquitoes in the park added unscheduled variation.

A conference of persons interested in

the program of the D.P. veterinarians met on Thursday afternoon after the installation of the new AVMA officers. This group discussed many phases of the problem and appointed a committee to formulate a program which will be in keeping with the veterinary medical licensing procedures of the several states and give to the deserving displaced veterinarians every consideration which can be granted.

NATIONAL BOARD OF VETERINARY MEDICAL EXAMINERS

The Board met and selected the five additional members as provided in the report of the committee which was adopted at San Francisco in 1948, and on which all of the organizing is done. The first president of the Board is Dr. W. R. Krill, who was chairman of the special committee which formulated the outline for this group. The first secretary-treasurer is Dr. J. G. Hardenbergh. Details of the organization, and a complete roster of members, will be found in the News Section.

HAVANA ADJOURNED MEETING

The sessions of the adjourned meeting in Havana, Cuba, were attended by almost 500 persons. Those who went from Miami Beach by plane were able to include a reasonable amount of sight-seeing and shopping in addition to the scheduled meetings. The latter consisted of a gathering at the School of Veterinary Medicine, University of Havana. The meeting was called to order by President W. M. Coffee and temporarily dismissed for inspection of the buildings



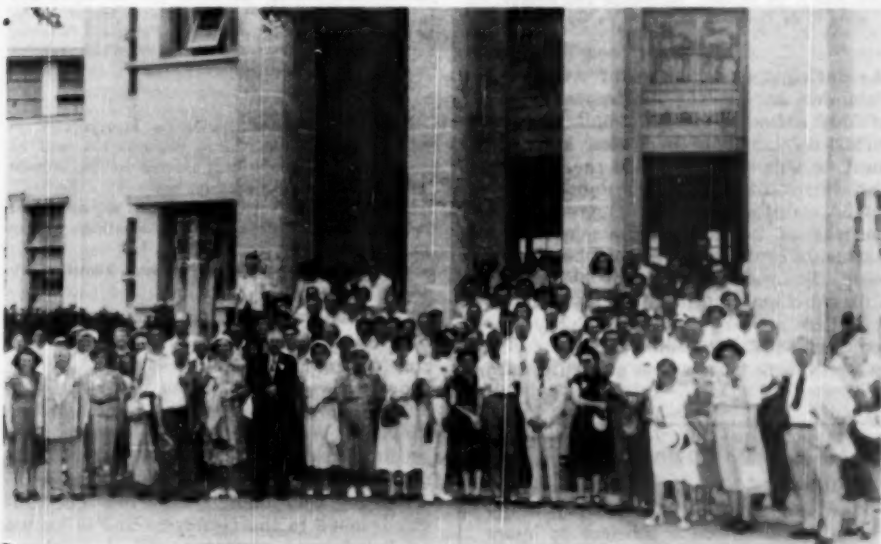
Commercial exhibit
area in the Auditorium, Miami
Beach session, Aug. 21-24, 1950.



In the Amphitheater of the School of Veterinary Medicine During the Post-Convention Session in Cuba Dean Ricardo Gomez Mierillo, School of Veterinary Medicine, University of Havana, with two of his colleagues (left), and President W. M. Coffee (4th from left), Dr. W. H. Brock, Dr. J. G. Hardenbergh, and Dr. L. M. Hurt.

and facilities of the School under the guidance of faculty members. The group then moved to Columbia Military City where members of the Military Veterinary Corps conducted small groups to the vari-

ous buildings and laboratories. The afternoon ended with a visit to Hatuey Brewery where refreshments were served. In the evening, the tour party visited two of the popular night clubs.



Part of the post-convention group on the steps of the School of Veterinary Medicine, University of Havana, in Havana, Cuba.

The schedule called for this trip to last until 2 a.m., but rain and wind approaching hurricane proportions shortened it for many.

On Sunday, the program was continued with a visit to the Army Remount Station at El Cotorro. Because it was still raining,



The Committee on Local Arrangements for women, Havana post-convention trip.

First row (seated, left to right)—Miss Teresita Gomez, Mrs. Graciela S. de Morales, Mrs. Dulce Ma. Gomez de Castellanos, reception and information; Mrs. Maria Florin de Parajon, Mrs. Aida P. de Gonzalez, Mrs. Edith P. de Mendez, Mrs. Coralía R. de Arenas, women's activities.

Second row (left to right)—Mrs. Alicia O. de Garzon, Mrs. Ada I. de Moreno, decoration and flowers; Virginia F. de Pino, Margarita M. de Galvez, press.

the anticipated inspection of Arabian and Palomino horses was limited to a parade of only a few of the outstanding animals. After refreshments had been served, the meeting was adjourned and the party prepared to return to Havana and home.

The clang and clatter of streetcars, the honking of horns, and the general noisy confusion of Havana will not be forgotten soon. The wait in the airport terminal was a fitting climax in this respect.

To our good colleagues in Cuba, we extend our heartiest thanks for their efforts in presenting such a fine and entertaining program.

Moving?

JOURNALS will not be forwarded by the post office. When moving, notify the AVMA office in advance to insure delivery of every issue.

Women's Veterinary Medical Association

The Women's Veterinary Medical Association held its fourth annual meeting on August 23 at Miami Beach, during the AVMA convention. The new officers installed were Drs. Margaret Sloss, Ames, Iowa, president; Estelle Hecht Geller, Ithaca, N.Y., secretary; Lois Calhoun, East Lansing, Mich., treasurer; Patricia O'Connor, Buffalo, N.Y., eastern vice-president; Joan Youngs Ziegler, Toledo, Ohio, central vice-president; Josephine Browne, Laramie, Wyo., western vice-president; and Hildgard Seelig, Asheville, N. Car., southern vice-president.

Among those present at the meeting were Drs. Ana Palaiz and Maria de Parajon of Cuba, and Dr. von Decken-Luers of the Virgin Islands.

The W.V.M.A. voted to affiliate with the International Women's Auxiliary, an organization whose purpose is to make "uniform a more helpful public understanding of the life and work of the veterinarian."

A motion was adopted that the women veteri-



New officers of the W.V.M.A. (left to right) Drs. Lois Calhoun, treasurer; Estelle Hecht Geller, secretary; Margaret Sloss, president; Patricia O'Connor, eastern vice-president; and Helen Wernicoff, retiring president.

narians in the Cuban region be incorporated in the W.V.M.A. The Cuban organization will be headed by a vice-president elected by the women veterinarians of that country.

The W.V.M.A. voted to establish a prize to be awarded to an outstanding graduating woman veterinarian each year.

Plans were then made for the next annual meeting in Milwaukee.

Mycotic stomatitis as it occurs in the South is quite often caused by the ergot which grows on Dallis grass, sometimes on alfalfa, clover, and other grasses. The fungus never causes vesicles but it does produce sore mouth, sore feet, a croupous membrane which is occasionally passed, intoxication, and finally staggering. The fungus belongs to the Uromyces and is known as *Polydesmus excitosus*.—W. J. Gibbons, D.V.M., Alabama.

SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

Restraint of Swine with Pentothal Sodium

M. E. MUHRER, Ph.D.

Columbia, Missouri

A STUDY of the use of anesthetics in restraint of swine was stimulated by the difficulties met at the Missouri station in maintaining a herd of hemophilia-like swine. These bleeder animals were first described by Hogan, Muhrer, and Bogart.² When bleeding occurs within the oral cavity, as well as other regions, application of local hemostatic agents is almost impossible in a large conscious animal.

Attempts to treat hemorrhages within the oral cavity when no anesthetic was used often resulted in further injury to the animal and death due to exsanguination. When the animal is anesthetized, these regions become safely accessible and the bleeding can be arrested with no injury to the patient or fear of injury to the attendant.

Several anesthetic agents were tried, and for our purpose pentothal sodium* was superior. One of the first agents used was ether. This was administered as an inhalant and was unsatisfactory for several reasons. It was difficult to administer because the larger animals would struggle vigorously when the ether cones were placed around their noses. The ether had a detectable odor, and the cones interfered with respiration. It was inconvenient because the most practical method of semi-restraint is snubbing the animal up by its upper jaw and nose, and the holder or snubbing rope usually interferes with the administration of ether. Since hogs are obese, it requires a large amount of ether to produce surgical anesthesia and after the animal is anesthetized, the period of

recovery is exceptionally long. Ether often causes gastrointestinal disturbances in swine and, in addition, it is a fire hazard.

Chloroform, as an inhalant, was also tried but had almost all of the disadvantages of ether. Barbital (sodium diethylbarbiturate), used intravenously or subcutaneously, had the disadvantage of being slower acting than pentothal sodium, and the recovery period in swine was exceptionally prolonged. When used in a dose large enough to produce surgical anesthesia in a rather fat 500-lb. boar, the recovery period was longer than twenty-four hours.

However, when pentothal sodium was used in a similar case, the recovery period was less than one hour. The prompt effect and quick recovery are time-saving factors in favor of pentothal sodium. It is desirable to have a prompt acting anesthetic so that the animal can undergo surgery soon after injection and be back on its feet for observation before the surgeon is ready to leave. If the anesthetic acts quickly, there is less danger of overdosage, providing it is administered slowly to the desired effect. The disadvantage of the effect wearing off before the operation is complete can be overcome by repeated injections as indicated by the approaching sensitivity. If the animal is "injected to effect" and kept unconscious with repeated small doses, the danger of too large a dose is overcome and the animal recovers quickly with few, if any, after-effects noted.

The ease and convenience of handling large animals with the aid of intravenous pentothal sodium anesthesia was soon appreciated and used on normal animals, as well as on the bleeders, for general practices such as castration, detusking, and hernia repair.

Pentothal sodium was used to anesthe-

Journal series No. 1201, University of Missouri, Columbia. From the Department of Agricultural Chemistry.

*Sodium ethyl (1-methylbutyl) thiobarbiturate secured from Abbott Laboratories, North Chicago, Ill.

tize 86 head of swine varying from 10 to 600 lb. in weight. The anesthetic was used in connection with lancing 3 abscesses, repairing 5 hernias, 11 splenectomies, and 55 castrations. It was also used in a number of other cases in connection with hemorrhage in the oral cavity, tooth extractions, trimming tusks, and discouraging fighting of bleeder boars. Like most male animals, when boars that are unaccustomed to each other are first put together, they usually fight until one or both are injured. Bleeder boars would bleed to death unless separated and treated. However, we have found that this fighting is discouraged if both animals are anesthetized when first put together. An explanation that seems plausible is that when the animals are regaining consciousness, they are not steady on their feet and can not put up a fight. By the time they have regained full coordination, one boar has usually established his superiority with a few harmless attacks.

INJECTION

A 5 per cent solution of pentothal sodium was injected into the marginal ear vein with a hypodermic syringe and small gauge needle. Large animals were held by a rope in the form of a noose around the upper jaw behind the tusks with the other end fastened securely to a well-anchored object.

Small pigs were held by an assistant in a position in which the ears were accessible. The marginal ear vein is usually visible if the ear is reasonably clean but, if not, the ear should be cleaned and dried. In some cases, the veins are small and hard to find with a hypodermic needle. These small veins can be distended by applying pressure proximally to the injection site or by placing a tight rubber band around the base of the ear. In extremely difficult cases, the veins can be further distended by shaving the ear and applying either heat, xylene, or both to the surface. In some cases, it may be advantageous to shave the ear to make the vein more visible.

After inserting the needle into a vein, a syringe can be used with aspiration to determine whether the needle is in the vein. If the blood flows readily into the syringe as it is aspirated, the needle may then be secured with a piece of adhesive tape extending over the base of the needle sticking to the ear on both sides. This is not necessary unless the animal struggles and there is danger of displacing the needle. With the needle securely in the vein, the injection should be made immediately, before the blood clots in the needle.

DOSE

The minimal effective dose (m.e.d.) of pentothal sodium is very small, indicating

TABLE I—Representative Data Showing Dosage and Effect of Pentothal Sodium in Swine

Animal identification	Weight (lb.)	Dosage and injection rate*	Time between surgical anesthesia and auto-locomotion (min.)		Operation performed	Respiration rate (per min.)		Heart rate (per min.)		Rectal temperature (F.)	
			before injection	after injection		before injection	after injection	before injection	after injection	before injection	after injection
White male 0	20.0	4 ml. in 2 min.	70	210	Splenectomy	18	51	146	300	103.4	100.9
Black male 0	29.0	3 ml. in 2 min.	8	56	Repair of bilateral scrotal hernia	29	38	151	203	103.4	102.4
White male 157	32.5	4 ml. in 2 min.	20	85	Castration	20	38	150	242	103.1	102.4
Red female 186	140.0	6 ml. rapidly; 10 ml. slowly to effect; 2 ml. slowly as needed.	70	190	Repair umbilical hernia	16	23	135	139	103.4	102.4
Black male 31	368.0	10 ml. rapidly; 8 ml. in 2 min.	4	30	Examination of preputial pouch	16	40	99	160	102.3	100.8
White male 14	510.0	15 ml. rapidly; 10 ml. in 6 min.	12	102	Castration	19	32	96	130	101.8	101.4

*Five per cent solution, intravenous.

that it is a potent drug. It is dangerous to inject a precalculated dose based only on body weight, because the tolerance for it varies greatly among individuals. It is safer, after a small rapid injection, to inject slowly to the desired effect and supplement the original injection, as needed, to produce and maintain the desired state of anesthesia. However, it is desirable to know about how much anesthetic will be required. Some representative data are shown in table 1. Data are shown for the size of the animal, amount given, and rate of injection as well as duration of anesthesia.

The 5 per cent solution was made by dissolving 1 Gm. of pentothal sodium in 20 ml. of distilled water. This relatively high concentration was chosen for convenience in injection. With the high concentration, a smaller volume of solution was required, which eliminated the use of extra syringes and second injections.

Animals, quite often, go through an excitement phase during the injection which can be minimized by taking them through this phase rapidly. This is done by giving the first half of the injection rapidly, followed by a slow injection to the desired effect. In actual practice, a 40-lb. pig will require about 4 ml. of the solution (5%). Give 2 ml. rather rapidly, to get the animal quickly through the excitement stage. The remainder of the dose, approximately 2 ml., should be given slowly until the desired effect is produced. The total injection will seldom be the same as the calculated dose, in as much as some animals will require more and some will require less. For purpose of estimating the minimal surgical dose (m.s.d.), table 2 may be helpful.

It should be pointed out that these amounts are based on the weights of

thrifty pigs, because thin, unthrifty pigs require less anesthetic to produce anesthesia. These amounts are somewhat less than the 1/6 to 1/8 gr. per pound recommended for dogs by Sweebe.² Some of the doses given in table 1 are larger than those recommended in table 2, but the length of surgical anesthesia produced was also greater than is normally necessary.

There is considerable difference in dosage required for anesthesia in swine partially because of the great differences in weights and conditions. The smaller pigs require more pentothal sodium per unit of body weight. Thus, on a unit basis, the larger animals are less tolerant. It can be observed (table 1) that a 4-ml. dose produced surgical anesthesia in a 20-lb. pig for seventy minutes, whereas, it required only 18 ml. to produce the same effect in a 140-lb. animal. The latter animal was seven times as heavy as the former, but the dosage was less than five times as large. This difference in dosage required for various sized animals was taken into consideration for the recommendations given in table 2. However, it should be emphasized that swine, like men, have a varying tolerance for pentothal sodium, the same as for other barbiturates, and that the anesthetic level can be maintained only by careful injection.

In spite of calculation and slow injection, it is possible to give an amount sufficient to cause cessation of respiration. When this is observed, the animal soon recovers if artificial respiration is given. There seems to be little danger of the pig dying from overdosage if artificial respiration is given, because apnea occurs long before cardiac depression. According to Wiedling,³ it requires about 16 times as much pentothal sodium to produce cardiac standstill as is required to produce respiratory standstill.

PHYSIOLOGIC EFFECTS

Sodium pentothal is known for its intense action of short duration. It is classed as an ultra-short acting anesthetic. However, in swine, the recovery period is not as short as has been observed in man and other animals. The recovery period from surgical anesthesia to autolocomotion in swine is usually more than thirty minutes (table 1), but in man this period is usually fifteen minutes or less. However,

TABLE 2—Suggested Minimal Surgical Dose (m.s.d.) of 5 Per Cent Pentothal Sodium Solution as a Basis for Judging Initial Rapid Injection Dosage

Size of animal* (lb.)	Amt. of 5% pentothal sodium, intravenous:	
	Calculated m.s.d. (ml./lb.)	Actual Amt. to give rapidly (ml./lb.)
10-50	0.1	0.05
50-100	0.09	0.045
100-200	0.08	0.04
200-300	0.07	0.035
300-400	0.06	0.03
400-600	0.05	0.025

*Thrifty animals; unthrifty animals require less anesthetic per unit of body weight.

recovery from pentothal sodium anesthesia in swine is short compared with recovery from other commonly used anesthetics.

The effects of pentothal sodium on respiration rate, heart rate, and rectal temperature are shown in table 1. These readings were taken before and after injection of pentothal sodium. The animals were caught and made as secure as possible with the aid of ropes. After the initial excitement was apparently over, the respiration rate was determined by observing thoracic movements. The heart rate was determined with the aid of a stethoscope, and the rectal temperature determined with a rectal thermometer. The second readings were taken after injection of pentothal sodium when the animal was under surgical anesthesia. It should be emphasized here that the heart rate, respiration rate, and rectal temperature were taken immediately after the animal became unconscious and that extreme care was taken to prevent the injection of excess anesthetic. The data, as shown in table 1, indicate that pentothal sodium, just sufficient to produce surgical anesthesia, increases heart and respiration rate and decreases rectal temperature. However, if excess of the anesthetic was injected, it was observed that the respiration rate was somewhat depressed. If the amount of anesthetic was greatly increased, the respiration rate was depressed to cessation and artificial respiration was necessary for a short time. In addition, it was observed that cardiac depression also accompanied the larger doses. The respiration and heart rate depression are further reason for careful control of the dosage by injection to the desired state of anesthesia.

ADVANTAGES OF USING PENTOTHAL SODIUM

- 1) There is less danger of injury to those who handle the animals.
- 2) It is more humane and puts operations on farm animals on a veterinary medical plane.
- 3) There is less commotion produced in the swine quarters and less excitement to other animals, especially with sows during farrowing time.
- 4) It minimizes struggling and reduces danger of injury or overheating of the animal, especially of larger animals.
- 5) It is easier for the surgeon and, therefore, better technique is possible. Hemorrhage can be controlled more efficiently, thus saving animals that might otherwise be lost.
- 6) Pentothal sodium is easily and quickly ad-

ministered. It is ultra-short acting with a rapid recovery. Thus, it is a great time-saver making it desirable for short operations, treatments, or examinations which are common in veterinary practice.

DISCUSSION AND SUMMARY

The ease and convenience of handling large hogs with the aid of intravenous pentothal sodium anesthesia, experienced in maintaining a herd of bleeder swine, led to the study of the application of this drug for normal swine-maintenance practices. Pentothal sodium was found superior to other anesthetics tried, because of the ease of administration, quick effect, and short recovery period. This anesthetic was used on swine ranging from 10 to 600 lb. in weight, and in connection with a variety of major and minor operations.

The minimum surgical dose can be roughly calculated from the weight of the animal as shown in table 2. About one-half of this amount should be given rapidly, followed by a slow intravenous injection until the desired effect is obtained. Pentothal sodium in small doses, just sufficient to produce surgical anesthesia, was found to increase heart and respiration rates and to decrease body temperature. However, larger doses had a depressing action upon respiration and heart rates. It should be further emphasized that respiratory depression precedes cardiac depression. Respiration should be watched closely when using pentothal sodium, and artificial respiration given in emergencies.

With the aid of pentothal sodium, a large boar can be castrated, rung, and de-tusked with less manpower and less danger to both the animal and the operator. When the animal is immobilized, the operation can be done with greater skill and care. Unnecessary injury and excessive hemorrhage can be prevented. It is believed that this drug is useful for both the investigator and the practitioner.

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Gastrotomy in a Crocodile – A Case Report

"Cleopatra" and the Veterinarian Make History

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AN ILLUSTRATED, front page article in the *Cincinnati Post*, Jan. 19, 1950, stated in part: "Cleopatra, the Zoo's bottle-swallowing crocodile, made history. She underwent the first major surgery on a full-grown crocodile. Dr. Carl A. Pleuger, the Zoo's veterinarian, made history, too. He performed the 40-minute operation." The newspaper considerably over-evaluated the historical significance of Cleopatra's experience and of my professional services in her behalf. However, to the best of my knowledge, this was the first major surgery performed on a full-grown (11-ft., 300-lb.) crocodile.

Cleopatra's troubles began early in November, 1949, when the zoo's superintendent and a reptile house attendant saw her swallow a pop bottle. When informed of this, I was certain that she would not solve her problem of getting rid of the bottle without help, because I did not believe it would be eliminated by regurgitation or could be evacuated via the bowel. My knowledge of Crocodylidae (*Eusuchia*) anatomy was not too profound, but I did know that the crocodile's wide, commodious gullet is nature-designed to serve as a storehouse for swallowed material. As the gullet does not readily give up its content, except to the stomach, and as I have never known a crocodile to regurgitate, it seemed evident that should the bottle leave Cleopatra's gullet, it would pass further along the alimentary tract. (Although the crocodile eats large animals, including man, its stomach is quite small. Consequently, the gullet must retain most of a meal until the relatively small amount of food which the stomach can hold is reduced in volume by the powerful gastric digestive secretion and is passed to the duodenum. The gullet then replenishes the stomach, and this continues until both gullet and stomach are emptied. In the crocodile, digestion is so leisurely a process that these reptiles are fed but twice a week.) Furthermore, I could not believe

that the bottle could pass from the stomach to the bowel, because the crocodile's pylorus is small. Neither did it seem possible that, if by some odd chance the bottle did negotiate the pylorus, it could traverse the bowel, because the crocodile's duodenum is double-looped and its small intestine is narrow and irregularly coiled. Undoubtedly, then, gastrotomy would be the key to the solution of Cleopatra's problem.

Difficulty of restraint ruled out surgery under regional or inhalation anesthesia and ruled in surgery under nembutal general anesthesia. As this was to be my first try at crocodile anesthesia and surgery, as available reference literature contained nothing on the subject, and as crocodiles are expensive, I developed my own restraint, anesthesia, and surgical techniques by first experimenting on alligators weighing 5 lb. or less, which are both cheap and plentiful. These alligators were given 1½ gr. of nembutal* orally, which produced complete anesthesia within a few hours. In fact, the anesthesia became dangerously profound. I consider metrazol** to be the most effective stimulant for use in controlling anesthetic depression in small animals, so it seemed logical to use this analeptic now. As was anticipated, 2 cc. of metrazol intraperitoneally every half hour for four hours did invariably prevent anesthetic death by respiratory failure. Thus, it was established that the alligator responds in a conventional manner both to central nervous system depressants (nembutal) and to central nervous system stimulants (metrazol).

On the basis of this information, several alligators weighing 200 to 400 lb. were given one 20- to 30-gr. oral dose of nembutal on one day, and the following day they were given 4 cc. of d-tubocurarine chloride†

*Nembutal is a product of Abbott Laboratories, Chicago.

**Metrazol is a product of Biltbas-Knoll Corp., Orange, N. J.

†d-Tubocurarine chloride is a product of Abbott Laboratories, Chicago.

intramuscularly, and nembutal, 1 cc. per 10 lb. of body weight, intraperitoneally. These alligators were also deeply depressed by, and recovered slowly from, the nembutal. Again, 2 cc. of metrazol intraperitoneally each hour for four or five hours successfully prevented respiratory failure. While these alligators were anesthetized, a number of laparotomies and gastrotomies were performed, and twice the pericardium was incised to determine whether this would produce shock. All of these alligators completely recovered in two to four days but, to facilitate healing of the abdominal incisions, they were not allowed in the water, where they ordinarily spend 80 per cent of the time, for two to four weeks.

Additionally fortified by the new knowledge and experience gained from experimenting with alligators, I now was prepared to operate on the crocodile. At noon of the day before the operation, using a horse-balling gun taped to the end of a 10-ft. rod, a 30-gr. oral dose of nembutal was administered, which produced slight sedation lasting twenty-four hours. The following morning, 6 cc. of d-tubocurarine chloride was administered intraperitoneally. This was accomplished by means of a 50-cc. hog cholera syringe taped on the end of a rod, the apparatus being used as a spear to insert the needle through the peritoneum of the mesogastric area, and the plunger being pushed down by a transom rod and hook in the hands of an assistant. In like manner, a 40 cc.-dose of nembutal was injected that afternoon.

The next morning, the crocodile being quiet and completely relaxed, 10 cc. of nembutal were injected intraperitoneally without using the syringe-mounted rod. By 1:00 p.m., preoperative preparation having been completed, the animal was placed on her back on an improvised operating table, her legs and tail were securely tied down and her mouth was taped shut. Palpation of the mesogastric region to the left of the median line revealed considerable crepitus in the gastric area, virtually establishing that the bottle was in the stomach. The abdominal skin was then thoroughly scrubbed and prepared for the 10-in. median line incision through the skin, the covering scutes (horny scales) having been separated and held out of the way by retractors. (This outer dermal layer, about the thickness of the sole of a

soft baby shoe, readily yielded to a heavy Bard-Parker blade and to a blunt Haupter bistoury.) Under this dermal incision was an inch-thick, very fine, muscular layer. An easily made incision through this layer of muscle, held open by retractors, gave ready access to the peritoneum. The stomach itself was palpated and then brought to the surface through a peritoneal incision. Then, a 3-in. incision, made through the stomach wall along the line of its greatest curvature, exposed the neck of a coca cola bottle. This bottle, unbroken, was removed from the stomach, as were the following: the major portion of 5 other broken bottles; 39 stones; 3 marbles; a .30-30-caliber shell; a .38-caliber shell; a plastic whistle; and a porcelain elephant!

After this mass evacuation, the stomach mucosa was thoroughly sponged, and the gastric incision was closed with Deknatel surgical silk No. 0, which was also used to close the abdominal muscle and subcutal incisions. The outer scutal skin incision was closed with No. 1 Deknatel sutures, painted with collodion, and covered with gauze sponges. The entire abdomen was then wrapped with a heavy muslin bandage.

Immediately after the operation, a 5-cc. dose of metrazol was injected intraperitoneally, and this dose of the stimulant was repeated every hour for five hours. The following day, three 5-cc. doses of metrazol were given at hourly intervals. As a result, no significant central nervous system depression developed postoperatively.

To facilitate healing of the abdominal incision, the crocodile was not allowed in the pool during the first three postoperative weeks. (A crocodile usually is in the water about 40 per cent of the time.) At the end of this period, the muslin abdominal bandage was removed and the operative incision was found to be completely healed. The patient was not fed for three months, until April 10, when her hibernation period was virtually at an end.

The Cleopatra of this case report, be she history maker or not, is now completely recovered. She eats normally—10 lb. of raw meat and some frogs and other dainties every third or fourth day—and takes her usual semiweekly plunge in the pool. Currently, Cleopatra probably does not remember her ordeal; I have the memory of a unique and successful surgical experience;

and the Cincinnati Zoo's manager has additional justification for posting signs: "Please do not feed the animals."

Blue Baby Calf

The veterinary columnist of *Successful Farming* (March, 1950) reports the first clinically recognized case of blue baby in the bovine or other domestic animal species (so far as we know). Though long suspected, this congenital cardiac aberration in domestic animals seems to have escaped notice as a clinical entity of the newborn. The case reported was a calf 3 weeks old, manifestly weak, short of breath, and obviously hopeless, that disclosed the tetralogy of Fallot (postmortem) as the cause of the distress.

Written for laymen, the technical details are not described. The bare statement that "This condition is fairly common in calves" is not confirmed but, if true, the calf ought to become a useful experimental animal in human surgery.

Treatment of Dog Bites

The use of fuming nitric acid is no longer approved for the sterilization of dog bites. Besides being extremely painful, the cauterization tends to seal in the virus. Replying to a query on the subject, the *Journal of the American Medical Association* recommends: (1) washing the traumatized area with medicated soft soap without scrubbing or any harsh friction; (2) rinsing off the soap with sterile water; (3) application of hydrogen peroxide; (4) wet boric acid pack; (5) a dose of tetanus antitoxin (if indicated); and (6) prompt antirabic injection if it's a mad dog bite, or suspect.

Unaccountable Brucella Agglutinins

One of the baffling problems of modern pathology is the unaccountable presence of Brucella agglutinins in the blood of human beings who have never shown any evidence of the disease and have never been directly exposed to animals, nor ever consumed raw milk. That there are sizable numbers of town people in that category who react to Brucella seroagglutination is common knowledge in medical and veterinary circles. The current imputation that the ag-

glutinins spring from the killed Brucella organisms consumed in pasteurized dairy products was seemingly disproved by the U. S. Public Health Service (*Pub. Health Rep.*, Dec. 10, 1949) in a trial among volunteer inmates of a penal institution. Carefully chosen adults given large doses of killed Brucella organisms orally, over prolonged periods, did not develop agglutinins of significant titers, nor any dermal reactions. The problem remains unsolved.

Artificial Insemination in 1949

Nearly 3 million cows were enrolled in breeding associations in 1949, according to the USDA, which indicates that 1 cow in 9 will be inseminated artificially in 1950. Exact figures were 2,827,530 cows in 372,968 herds in 1,460 associations scattered over 47 states and Alaska—an increase of 17.2 per cent in number of cows and 18 per cent in number of herds over 1948. Wisconsin, leader in artificial insemination since 1942, again headed the list in 1949 with 411,566 cows. New York, Pennsylvania, and Ohio followed in that order.

Xylocaine, New Local Anesthetic

Discovered by Lofgren and Lundqvist of Sweden in 1948, xylocaine differs from the cocaine-procaine group chemically and in all favorable respects: stable in solution, rapid action, dispersion in the tissues, durable action, total inhibition of sensation, and low toxicity. All are properties determined by controlled experimentation on a large scale. At 2 to 3 per cent, with adrenalin 1:100,000, the results were 95 per cent excellent in difficult techniques and rebellious pain.—*Abridged from Abreges Mensuels du Praticien Moderne, Paris.*

Two Precocious Heifers.—Drs. E. and G. Lecomte (*Rec. méd. vét.*, June, 1950: 356-357) report the birth of a normal, viable, full-term calf to a Normandy heifer 11 months and 23 days old. Critical check of the facts pertaining to the unusual event revealed that the fecundation occurred at age of 2 months and 13 days and, furthermore, that she was the daughter of a 5-year-old cow that, in 1942, gave birth to a full-term calf at the age of precisely 1 year.

Dystocia in a Bitch — A Case Report

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Quezon City, Philippine Islands

A GRADE German Shepherd bitch about 1 year old and weighing approximately 23 lb. was presented for examination on March 21, 1950, at the Veterinary Hospital of the College of Veterinary Medicine, University of the Philippines, Quezon City. The patient was unable to walk and had to be carried from the ambulance to the examination room.

it had been laboring for five days and had not eaten during that time.

To relieve the obvious dystocia, 1.4 cc. of halatal,* as a general anesthetic, was administered. Only the first fetus was removed by mutation and forced extraction, so that no time was lost in preparing the animal for cesarean section. However, in view of the gravity of the patient's condition, a very unfavorable prognosis was given.



Fig. 1.—Ventral view of the pelvic bone of the bitch.



Fig. 2.—Dorsal view of the same bone of the bitch.

Routine examination revealed that the animal was pregnant and that necrotic tissue, which was later found to be the head of a putrified fetus, was hanging from the lips of the vulva. The bitch was restless, and had a temperature of 106° F., and fast, irregular pulse. The owner said that

Upon opening the abdominal cavity, the horns of the uterus, together with the fetuses contained therein, were found to be in an advanced state of decomposition. A considerable portion of the vagina adjacent to the cervix uteri was likewise involved. An ovario-hysterectomy was performed and 200,000 units of penicillin was

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*Jensen-Salsbery Laboratories, Inc., Kansas City, Mo.

administered intramuscularly. One liter of 5 per cent dextrose solution and more penicillin were prescribed, but three hours after the operation the patient died.

What makes this case interesting is the information volunteered by the owner, i.e., the animal, run over by a car when it was a pup, was left untreated, and recovered without showing any apparent abnormality or deformity of the hindquarters. In view of this history, a thorough digital exploration of the vulva and vagina was made but this did not reveal any deformity of the pelvic canal. Neither was there a sign of external traumatic injury. Nevertheless, for a more thorough examination and to satisfy the curiosity of the writers, the pelvic bone was macerated and cleaned of adherent muscles and ligaments. Here are the findings:

The pelvic bone was markedly deformed, involving particularly the left os coxae. Viewed dorsally (fig. 2), the latter appeared to be pushed forward so that the posterior borders of the two ischia did not lie at the same level. The wing of the left ilium, instead of curving normally outward, was bent inward in almost the same direction as the right one. The medial wall of the left acetabulum bulged internally, thus narrowing greatly the pelvic canal. The bone, when examined on its ventral aspect (fig. 1), showed the left cotyloid cavity to be much enlarged, compared with the right. The left obturator foramen was conspicuously narrowed, especially toward its anterior margin. On profile, the acetabular part of the left os innominatum was higher than that of the right counterpart. Rough spots and callus formations on the left os coxae indicated that the bone was not only distorted or displaced but also fractured in two different places; namely, at the symphysis ischii and at the junction of the ilial wing and shaft. With all these defects observed, the pelvic axis, too, had evidently been altered to a considerable degree (fig. 1, 2).

That no evidence of any pelvic deformity was disclosed by the careful examination of the animal can easily be explained by the fact that the bony pelvis, in the fresh state, is covered by muscles and other soft tissues which smooth out any bone defect of the pelvic passage. Furthermore, the walls of the vaginal canal were edematous and thereby rendered an appraisal of the actual

condition of the pelvic cavity by manual exploration doubly hazardous.

The death of the animal was unnecessary and could have been avoided had the owner made any effort to see a veterinarian for a thorough physical check-up of his animal before breeding her.

Mechanical Factors in Wound Healing

Before the days of asepsis and antibiotics, the success of surgery depended almost wholly on mechanical excellence. The availability of asepsis and the antibiotic agents have not replaced or superceded mechanical excellence; they have only supplemented it.

Delayed wound healing may be caused by dietary deficiencies (hypoproteinemia and avitaminosis C), senility, obesity, and malignant disease, as well as the purely mechanical delays such as unnecessary trauma during surgery, inappropriate size, type, or number of sutures, and unusual strain on the healing wound.

The surgeon who points out the merits of his ample incision to avoid trauma often follows this by the use of self-retaining wound retractors, forcing it open as far as possible, repeated wiping of the drying tissues with a rough gauze sponge, snapping half a dozen or more hemostats on tiny bleeding vessels, applying ligatures of nonabsorbable material to replace the hemostats, pinching dozens of small wounds along the incision edges with a rat-tooth thumb forceps when suturing, etc.

The great tensile strength and permanency of stainless steel wire for buried sutures are wasted in the average surgical wound. The great tensile strength is not needed in suturing soft tissues, but only in bone, cartilage, or possibly tendon. A surgical wound carefully made should be healed within two weeks to a point where sutures are no longer needed.

The size, number, and pattern of suturing are much more important than the tensile strength and permanency.—W. W. Armistead, D.V.M. (Texas), at the Ohio Conference for Veterinarians, June 14-16, 1950.

Perineal hernias occur only in the male dog and usually in the mature animal.—M. W. Allam, V.M.D., Pennsylvania.

CLINICAL DATA

Clinical Notes

Enteritis in pigs is now a more costly disease than hog cholera in Iowa.—A. W. Krause, D.V.M., Iowa.

Terramycin is reported to have a broad bacterial spectrum which includes both gram-positive and gram-negative organisms.

Cornell University workers (*Cornell Vet.*, Jan., 1950) have reported isolation of the virus of avian pneumoencephalitis (Newcastle disease) from a starling found near Ithaca, N. Y.

DDT does not poison by absorption through the skin. Navy doctors concluded after observing workers who had been in contact with DDT for as long as five years.—*Sci. News Letter*, April 22, 1950.

The Practitioner as a Surgeon.—Most practicing veterinarians prefer to use the syringe instead of the scalpel, but those who are successful find that surgery is the best of all practice builders.—G. R. Fowler, D.V.M., Iowa.

Misguided Penicillin Therapy.—Improper use of penicillin, based on commercial advice, is frequently the cause of udder damage and disease spread. Apparent good results from its use may lead to unwarranted complacency, since owners may not understand that there is always danger of reinfection.—1949 Report, School of Veterinary Medicine, Michigan State College.

The almost complete immunity of pigeons to classical fowlpest provides a means of differentiating it clinically from pneumocephalitis (Newcastle disease), or pseudopest, as it is called in foreign-language literature. Until recent years, the two specific plagues were not differentiated and not infrequently laryngotracheitis further confused the diagnosis.—*From Bull. Off. Internat. Epizoot.*, Jan.-Feb., 1950.

Six to 8 oz. of China berries is sufficient to kill a 200-lb. pig.—C. D. Grinnells, D.V.M., North Carolina.

Grass grown with a legume may contain twice as much protein as the same grass grown alone.

The animal patient senses when the veterinarian knows his business, is unafraid, and has the situation under control.—W. M. Coffee, D.V.M., Kentucky.

Before infusing a quarter for mastitis, 5 cc. of posterior extract, administered intravenously, is helpful. The milking out of the quarter should begin within thirty seconds after the intravenous injection is made.—F. H. Fox, D.V.M., New York.

H. J. Escott, a British practitioner, credited intramuscular injections of vitamin B₁₂ with bringing immediate improvement in nervous forms of canine distemper (*Vet. Rec.*, May 6, 1950). The report, which was not conclusive, was based on results in 2 cases where all other treatments had failed.

Although experimental swine erysipelas in pigeons responds consistently to penicillin therapy, the results in man and swine are not successful, according to trials currently reported to the veterinary academy of France (*Bull. Acad. vét. France*, Feb., 1950).

Actinomyces in Dogs.—Actinomyces infections in dogs are numerous and cosmopolitan, but only a few generalized, septicemic cases have been reported. Such a case in a 3-month-old Spaniel was studied critically at the Lyon clinic (*Rev. Méd. vét.*, Dec., 1949). The infection was swift and deadly and invaded the principal organs, including the brain.

A Biochemical and Bacteriologic Study of Mare's Milk

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East Lansing, Michigan

OUR ATTENTION was called to a nursing foal that was not doing well. A thorough clinical examination failed to reveal any specific diseases in the foal, and the mare appeared to be in good health except for a swollen udder. This suggested the possibility of an infectious agent in the udder and milk of the mare, so the foal was immediately placed on a diet of modified cow's milk. Bacteriologic examination of the mare's milk yielded a hemolytic *Streptococcus* that apparently was causing an acute mastitis. The foal responded to the change in diet and soon was completely recovered from its illness.

This experience prompted us to search the literature for data concerning the microflora and some cellular and chemical properties of mare's milk. Since no such references were found, this study was undertaken to learn something about these phases of mare's milk.

METHODS

Milk samples (5 cc.) were aseptically collected in sterile corked tubes from each half of the udders of 17 lactating draft and saddle mares varying in age from 4 to 20 years. The milk samples were stored in the refrigerator (40 F.) until examined. In all cases, the tests were applied within two hours of collection.

The bacteria plate count was made according to the standard methods of the American Public Health Association.¹ The per cent of chlorides was determined by chemical titration using silver nitrate with potassium dichromate as the indicator. Bromthymol blue was used as the indicator to determine the pH of the milk colorimetrically. The leucocyte content was determined by counts made on Breed's smears of fresh milk.² Milk films prepared from all samples, after they had been incubated at 37 C. for a minimum of twelve hours, were examined to detect udder infection.³ Finally, 0.2-cc. amounts of the incubated milk were cultured in tryptose blood agar containing 10 per cent of horse blood. Isolations of typical colonies of bacteria were made from both the blood agar and standard plates for identification.

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RESULTS AND DISCUSSION

The results of examination of milk samples are presented in table 1. The milk samples from the first 8 mares were not checked for pH and percentage of chlorides. These data are discussed under the following headings:

1) *The Standard Plate Bacteria Count.*—Since the standard plate count of cow's and goat's milk is one of the measures of quality of the milk, the same technique was applied to the mare's milk. The total number of samples examined is too small to draw final conclusions, but the data are interesting and are similar to those found in milk samples from cattle.

The bacteria counts (bacteria/cc. of milk) varied from a low of 10 to a high of 54,000. Of the 33 samples, nine had a count of less than 100—streptococci were isolated from one of these; 13 had counts from 100 to 500—streptococci were isolated from two of them; four were between 500 and 1,000—streptococci were isolated from one; five were between 1,000 and 10,000—streptococci were isolated from two; and only two were above 10,000, with streptococci present in both. In general, the bacteria counts on the milk from each half of the same udder were similar; in only 2 cases (mares 6 and 16) was there a wide difference.

2) *The Percentage of Chlorides.*—This analysis was not made on the 16 milk samples from the first 8 mares in the study but was applied to all of the remaining samples. The test was able to detect whether the per cent of chlorides was lower or higher than 0.14. All samples tested contained less than 0.14 per cent of chlorides irrespective of presence or absence of streptococci. This finding is of interest, because many healthy cows produce milk with a higher percentage of chlorides, and most cases of bovine mastitis produce a milk with the chloride being above 0.16 per cent.

3) *The pH.*—As in the chloride determination, the pH was not determined of

the milk from the first 8 mares. All but four of the 17 samples checked had a pH of 6.6 as determined by the method used. In three of these samples, streptococci were found in the microscopic test and on blood-agar culture. The pH of the four exceptions were: 6.7, 6.8, 7.3, and 7.4. The last two samples were obtained from mare 16, while the other two were from mares 14 (left half) and 10 (right half), respectively. Three of the samples with a pH greater than 6.6 yielded streptococci.

4) *The Leucocyte Content and Streptococci.*—The number of leucocytes per cubic centimeter of milk was less than 20,000 in all 33 samples, with all but four being 10,000 or less. No correlation was found between the presence of streptococci and the number of leucocytes in the milk. More work needs to be done to determine whether the streptococci isolated were causing a chronic udder infection or whether they were present merely as transient organisms.

If the streptococci are considered as causing a chronic mastitis, then 23 per cent of the halves (15% of the mares) had a chronic streptococcal mastitis.

5) *The Microflora of Mare's Milk.*—Iso-

lations were made from representative colonies on the tryptone-glucose-extract-milk and the blood-agar plates. After preliminary screening, ten different cultures were chosen for identification as representative of the types of microorganisms found on the plates. Of the ten cultures, two were streptococci, seven were cocci with no definite arrangement, and one was a rod. One of the streptococci was lost before final identification, therefore is not included in this study. The organisms were identified according to Bergey's "Manual of Determinative Bacteriology," 6th edition. In a few cases, the biochemical reactions did not always fit the classification; these variations are reported where they apply.

The *Streptococcus* was identified as *Streptococcus fecalis*; the rod, as *Achromobacter superficialis*; the cocci as *Micrococcus catarrhalis*, *Micrococcus caseolyticus*, *Micrococcus ureal*, *Micrococcus caecolyticus*, *Micrococcus epidermidis*; and the remaining culture fitted the description for *Micrococcus agilis* in all respects except pigmentation. According to "Bergey's Manual," it should be rose in color but the culture actually is tan.

TABLE 1.—The Results of Examination of Milk Samples from Each Half of the Udders of 17 Mares

Mare (No.)	Half	Bacteria per cc. (standard plate)	Chlorides (%)	pH	Leucocytes per cc.	Microscopic test	Blood agar
1	Right	800	Not run	Not run	5,000	—	—
	Left	300	Not run	Not run	10,000	—	—
2	Right	200	Not run	Not run	5,000	—	—
	Left	800	Not run	Not run	5,000	—	—
3	Right	3,000	Not run	Not run	5,000	—	—
	Left	7,200	Not run	Not run	5,000	—	—
4	Right	70	Not run	Not run	5,000	—	—
	Left	400	Not run	Not run	5,000	—	—
5	Right	10	Not run	Not run	5,000	—	—
	Left	20	Not run	Not run	20,000	—	—
6	Right	200	Not run	Not run	5,000	—	—
	Left	1,200	Not run	Not run	10,000	—	—
7	Right	10	Not run	Not run	5,000	—	—
	Left	40	Not run	Not run	5,000	—	—
8	Right	54,000	Not run	Not run	10,000	+ Str.	+ Str.
	Left	48,000	Not run	Not run	20,000	+ Str.	+ Str.
9	Right	500	Less than 0.14	6.6	Less than 6,000	—	—
	Left	200	Less than 0.14	6.6	Less than 6,000	—	—
10	Right	2,400	Less than 0.14	6.8	Less than 6,000	+ Str.	+ Str.
	Left	3,200	Less than 0.14	6.6	Less than 6,000	+ Str.	+ Str.
11	Right	140	Less than 0.14	6.6	Less than 6,000	+ Str.	+ Str.
	Left	100	Less than 0.14	6.6	Less than 6,000	+ Str.	+ Str.
12	Right	40	Less than 0.14	6.6	Less than 6,000	—	—
	Left	80	Less than 0.14	6.6	Less than 6,000	—	—
13	Right	250	Less than 0.14	6.6	Less than 6,000	—	—
	Left	320	Less than 0.14	6.6	Less than 6,000	—	—
14	Right	Could not get sample because mare objected			Less than 6,000	+ Str.	+ Str.
	Left	30	Less than 0.14	6.7			
15	Right	800	Less than 0.14	6.6	Less than 6,000	—	—
	Left	150	Less than 0.14	6.6	Less than 6,000	—	—
16	Right	250	Less than 0.14	7.4	Less than 6,000	—	—
	Left	1,000	Less than 0.14	7.3	Less than 6,000	+ Str.	+ Str.
17	Right	170	Less than 0.14	6.6	Less than 6,000	—	—
	Left	80	Less than 0.14	6.6	Less than 6,000	—	—

The streptococci were isolated only from mares 8, 10, 11, 14, and 16 while the remaining organisms were found in all milk samples.

SUMMARY

The standard plate count of milk samples collected aseptically from 17 mares varied from 10 to 54,000. Of 33 samples collected, 22 had counts of less than 500, only two were higher than 10,000, while the remaining nine had counts varying from 500 to 10,000. In all but 2 mares, the counts on milk from each half were similar.

All 17 milk samples tested had less than 0.14 per cent of chlorides, irrespective of whether streptococci were present. The pH of these samples was 6.6 except in 4 cases where it was 6.7, 6.8, 7.3, and 7.4; and increase in the pH of milk was not correlated with the presence of streptococci in the milk.

None of the 33 samples had more than 20,000 leucocytes per cubic centimeter of milk; all but four had counts of 10,000 or less.

The 10 representative organisms found in mare's milk belonged to the *Micrococcus*, *Achromobacter*, and *Streptococcus* genera.

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Animal Diseases Confused with Poisonings

The author* reviews cases submitted to the Hanover (Germany) Veterinary School with a history of suspected poisoning, but a careful pathologic examination indicated that malnutrition, avitaminoses, infection or parasitism was at least a contributing cause. He mentions a number of diseases of domestic animals which frequently are confused with poisonings and describes symptoms and pathologic pictures. Follow-

ing is a brief listing of the diseases mentioned.

Fowl.—Rat poison (containing phosphid hydrogen) and sodium chloride (salted fish) were most frequent. Others were avitaminosis, strongyloidosis, pullorum disease, coccidiosis, dermanysus, salpyngitis, tuberculosis, and leucosis (internal hemorrhage).

Dogs.—Arsenic in anthelmintics was the most frequent, followed by thallium and rat poison. Others were distemper, ascariasis, toxic liver dystrophy, intestinal incarceration, volvulus, intestinal blocking, internal hemorrhage, and trauma.

Cats.—Arsenic, thallium, and rat poison, as mentioned in the dog, were again the most frequent, with other conditions mentioned being infectious enteritis (cat distemper) and infectious laryngocenteritis.

Rabbits.—Poisoning was practically unknown but coccidiosis and pseudotuberculosis were confused with it.

Goats.—Hemorrhagic enteritis of unknown cause was the most frequent condition met. Poisoning was not common.

Sheep.—Arsenic and fluorine were the most common poisonings seen, and few diseases were confused with poisoning.

Swine.—Rat poison was the most common condition, and peracute swine erysipelas and hog cholera were sometimes confused with it.

Cattle.—Chronic fluorine and lead poisoning were fairly common. Oxalic acid poisoning from heavy feeding of beet tops was also seen. Shipping fever and infectious bronchitis were sometimes suspected to be of poisonous origin.

Horses.—Mercury and arsenic poisoning were reported. Vermineous aneurysms in foals were sometimes mistaken for poisoning, as was true colic, especially when several horses were affected at the same time. There was also a toxic liver dystrophy of unknown origin.

Fowl Plague Vaccine.—An inactivated chicken embryo vaccine prepared by British workers is experimentally promising against fowl plague, having conferred solid immunity against 100 m.l.d. of plague virus twenty-one days after vaccination (*Brit. Vet. J.*, April, 1950). Results of further tests will be watched with interest, as no previous method of immunization has proved reliable for practical use.

*Kohler, H.: Diseases of Animals which Can Be Confused with Poisoning. *Tierärztl. Umschau* (Feb., 1949): 35-40.

The Use of Bacitracin in Small Animal Medicine

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THE DEVELOPMENT of each new antibiotic greatly increases the number of diseases which become amenable to therapy. The treatment of surface infection has always been a difficult problem for the veterinarian specializing in small animals, since so many factors influence the course of surface or wound infections of domestic animals. The use of bacitracin in treating surgical infections in man has proved so successful that the need for surgery in pyogenic lesions has been eliminated in many instances. These results have led us to believe that bacitracin could be used effectively in the treatment of local infections of small animals. This report is the result of our use of bacitracin* in the treatment of pyogenic infections in our small animal practice.

PHARMACOLOGY OF BACITRACIN

Bacitracin was reported by Meloney¹ and his coworkers in 1945 as the growth inhibitory active principle of a particular strain of *Bacillus subtilis* obtained from a tissue debrided from a patient with a compound fracture of the tibia. Although the first *in vitro* studies with the crude material showed that bacitracin was active chiefly against gram-positive organisms, further tests showed that gonococci and meningococci were also susceptible to its action. Studies *in vivo* demonstrated that mice could be protected by bacitracin injected subcutaneously against 10,000 or more minimum lethal doses of hemolytic streptococci given intraperitoneally. The original report¹ of preliminary clinical studies in man indicated that bacitracin was an effective agent for the treatment of hemolytic streptococcal and staphylococcal infections.

A unit of bacitracin, a light tan powder, freely soluble in water and sterile isotonic solution, was defined by Meloney as being "the amount which when diluted 1:1,024 in a series of twofold dilutions in 2 cc. of beef infusion completely inhibits the growth of a stock strain of group A hemolytic *Streptococcus*, when the inoculum used to seed the tubes is 0.1 cc. of a 10^{-5} dilution of an overnight culture in blood broth." Bacitracin is filterable through a Berkefeld or Chamberland filter and is neutral in reaction, resisting precipitation by phys-

iologic changes in pH. The antibiotic is precipitated, however, at a pH of 3 or less. Dry bacitracin powder is stable in sealed vials for at least eighteen months at room temperature, while solutions kept in the refrigerator will begin to deteriorate in about three weeks and, therefore, should not be used. Anhydrous grease base ointments of bacitracin are stable for about one year, but water-miscible ointments lose potency rapidly.²

Bacitracin has been found to be effective against most strains of hemolytic streptococci, nonhemolytic streptococci, coagulase positive staphylococci, pneumococci, gonococci, anaerobic cocci in general, all of the gas gangrene group of organisms and the bacillus of tetanus, the diphtheria bacillus and the diphtheroids, the spirochetes of syphilis, the mouth spirochetes, the actinomycetic group of organisms, and, among the Protozoa, the *Endameba histolytica*. Bacitracin shows little or no action against the large group of aerobic gram-negative, nonsporeforming bacilli. Although bacitracin has a range of antibacterial activity generally similar to that of penicillin, it is of wider scope since it is, in addition, effective against some penicillin-resistant organisms.

CLINICAL USE OF BACITRACIN

Bacitracin, at the present time, is administered mainly as a topical agent, since systemic administration has resulted in some urinary manifestations of nephrotoxicity in man. Pharmacologic studies in dogs and systemic administration of bacitracin have not caused such toxic manifestations. Bacitracin in dogs is of low toxicity and can be administered topically, orally, and systemically with impunity.

The use of bacitracin in furuncles, abscesses, and traumatic wounds has greatly reduced the need of surgical treatment in these conditions. Bacitracin can be applied as an ointment containing 500 units per gram and, as such, has been effective in treating pyogenic infections of the skin,^{3,4} or a sterile solution of bacitracin can be injected directly into the core of an abscess, furuncle, or wound, resulting in excellent therapeutic success.⁵ An ophthalmic ointment of bacitracin has been prepared and used effectively in the treatment of external ocular infections.⁷ Bacitracin can be administered orally for the treatment of amebiasis since adsorption studies show it to be poorly adsorbed from the intestinal tract. Therefore, it is not toxic when administered in this manner⁶ because insufficient quantities are adsorbed to cause any toxic effects.

*The bacitracin employed in this study was supplied to us by Commercial Solvents Corporation.

Since bacitracin remains in the lumen for long periods, it can be considered as being topically administered in the treatment of amebiasis. *Entamoeba histolytica* is particularly sensitive to bacitracin and the use of this antibiotic in the treatment of these infections has been very satisfactory. The use of oral bacitracin may be shown by future studies to be effective in the treatment of amebic dysentery of dogs. It may also be effective for the treatment in intestinal disturbances secondary to, or accompanying, systemic infections. It would also be indicated in the treatment of other intestinal infections either alone or in combination with other antibiotic agents.

Bacitracin can be administered as a powder, as a solution to be injected directly into the site of infection, or as an ointment. This facilitates its use in a wide variety of conditions. There is an apparent need for such an agent in veterinary medicine and, for this reason, a series of clinical trials was made to determine whether bacitracin presented the same antibacterial effects when used in pyogenic infections of animals as in these infections in man.

BACITRACIN IN VETERINARY MEDICINE

1) *Otitis Externa of Dogs*.—One of the most common conditions treated in small animal practice and one that is most difficult to clear up rapidly is otitis externa (otorrhea or ear canker). This involvement of the internal portion of the external ear canal usually is seen at various degrees of inflammation in dogs, depending upon the stage at which the animal is brought to the veterinarian. A search of the literature reveals little information as to the etiology of this condition.

Witter⁹ showed experimentally that these conditions can be due to one or more of four possibilities: (1) water in external ear; (2) soap solution in the external ear; (3) saponated cresol solutions in the external ear; or (4) accumulation of exudate. He observed that infection occurred only as a secondary manifestation. Kaufman and Frost¹⁰ reported finding parasites (*Otodectes cynotis*) in 28 of 50 consecutive cases of otitis externa, while other workers¹¹⁻¹³ postulate that this condition is due to pyogenic bacteria.

It is our belief that otitis externa is primarily an infectious condition, secondary perhaps to such factors as suggested by Witter. Before treating this condition as a pyogenic infection, it was necessary to demonstrate the presence of such organisms and, for this reason, cultures were taken from the ears of dogs having otitis externa. Bacteriologic cultures of the exudate from these dogs yielded *Staphylococcus aureus* or a *Streptococcus* organism. In addition to culturing the exudates, the level of

sensitivity of the isolated organisms toward bacitracin and penicillin was also determined (see table 1).

From the results listed in table 1, it is seen that bacitracin had a much stronger inhibition on the growth of the cultures in 85 per cent of the cases than did penicillin. Bacitracin inhibited *Staph. aureus* organisms at as low a concentration as 1 unit per milliliter while the same culture required in many cases as high as 100 units per milliliter of penicillin. The nonhemolytic streptococci likewise showed the same sensitivity to bacitracin and the same resistance to penicillin. However, the hemolytic streptococci appeared to be slightly more sensitive to penicillin.

A total of 25 dogs, having either acute or subacute otitis externa were treated with bacitracin. Treatment was carried out in the following manner. First, the external ear canal was cleansed in order to remove any debris that might be present. This was done by swabbing the ear with cotton saturated with ether. The ear canal was then filled with bacitracin ointment (500 units per gram) injected into it via an ear applicator tube. The tube of ointment was previously held under running hot water to liquefy the contents, so as to enable the ointment to penetrate the depths of the ear canal. This procedure was repeated in those cases which did not respond to one treatment.

Of the 25 cases treated, excellent results were obtained in 21. Complete cessation of clinical symptoms occurred in less than forty-eight hours after the first and only treatment. The 4 remaining dogs were re-treated on the fourth day, as the external canals were still slightly inflamed. The results in these 4 dogs could not be considered any better than results obtained with previous methods of therapy.

2) *Treatment of Traumatic and Infected Wounds*.—Bacitracin has been most effective when placed directly in contact with the pyogenic organisms under treatment. For this reason, we have found it a remarkable agent for the treatment of traumatic wounds. Many infected wounds are presented in our practice in both long-haired and short-haired animals, many of which are first seen when they are already infected, pussy, inflamed, dirty, and completely untreated. We have employed bacitracin in such conditions with excellent results in more than 50 dogs. Bacteriologic cultures were not always made to determine whether the organisms present were or were not bacitracin-sensitive. However,

not a single wound failed to respond to our method of treatment. Three modes of administration were used, depending on the type of condition encountered.

a) Direct Injection of Bacitracin Solution.—The dry powder can be easily dissolved in sterile saline, or distilled water, to the desired concentration. The optimum concentration was found to be 500 units per cubic centimeter and was best prepared by dissolving the required amount of bacitracin in sterile isotonic sodium chloride solution with 1 per cent to 2 per cent added procaine to diminish any pain due to local edema.

TABLE I—Pathogens Isolated from Ear Exudates of Dogs Having Otitis Externa

Dog (No.)	Organism isolated	Sensitivity to bacitracin (units/ml.)	Sensitivity to penicillin (units/ml.)
1	<i>Staph. aureus</i> (hem.) Coagulase positive	1.0	10.0
2	<i>Staph. aureus</i> (hem.) Coagulase positive	1.0	1.0
3	<i>Str. hemolyticus</i> *	100.0	10.0
4	<i>Str. hemolyticus</i> *	10.0	100.0
5	<i>Str. hemolyticus</i> **	1.0	1.0
6	<i>Str. nonhemolyticus</i> *	1.0	4.0
7	<i>Str. nonhemolyticus</i> *	1.0	100.0
8	<i>Staph. aureus</i> (nonhem.)* Coagulase positive	1.0	100.0
9	<i>Str. nonhemolyticus</i> †	40.0	100.0

**Staph. albus*; ** gram-positive, sporeforming bacilli; † diphtheroids.

Excellent therapeutic results were obtained by irrigating infected wound cavities following routine surgical procedure. In addition, incipient abscesses, carbuncles, hair follicle infections, or other localized infections, can also be effectively treated by injecting the bacitracin solution directly into the involved areas. The quantity of the injection ranges from 0.2 cc. to 5.0 cc. and should depend on the size of the infected area or cavity being treated. One injection daily for three to five days has been found to clear up these local infections without any complications or difficulties. The advantage of injecting the material directly into the incipient abscesses and carbuncles is that there is no need in many of these cases to resort to surgery as a spontaneous resolution of the infection occurs.

b) Saturation of Gauze Strips Placed in the Wound.—In the treatment of post-operative incisions and large wounds, a gauze strip is saturated with bacitracin ointment containing 500 units per gram, and placed in the site of the wound.

It is important to clean and debride a traumatic wound before placing the saturated gauze in it. When no infection exists, the use of the antibiotic is a prophylactic measure to prevent the development of infection. The saturated gauze strip is placed in the cleansed area or wrapped around the wound and left in place for forty-eight hours. This results in rapid healing and in a complete disappearance of any purulent material which might have existed. The gauze, saturated with the ointment, does not interfere with granulation and does not adhere to the tissues. We employ the gauze applications in preference to irrigation in large gaping wounds where the solution would not remain in contact long enough to be effective. Surgical incisions treated in this manner heal rapidly with the chance of developing secondary infection very much reduced.

Conditions other than wound or surgical infections can also be treated in this manner. Two dogs having osteomyelitis were treated with bacitracin ointment. Following surgical cleansing of the affected bone, gauze saturated with the bacitracin ointment was packed into the wound cavity. The infection cleared and complete healing of the infected bone took place without any complications.

c) Filling of Wound Cavity with Bacitracin Ointment.—In the treatment of piercing wounds, bacitracin ointment is injected into the cleansed wound by means of an ear applicator tube. In this way, the ointment is introduced into the deepest areas of the wound. Within forty-eight hours, granulation and healing will have started. There is no inhibition of healing, no sensitivity, and no toxic effects.

3) Treatment of Systemic Infections.—Bacitracin in solution has been administered to puppies and to adult dogs without any signs of toxicity. Systemic infections due to bacitracin-sensitive organisms, have been controlled with bacitracin.

A group of 40 dogs having a systemic infection were treated with bacitracin, intramuscularly, after it was found that these dogs did not respond to sulfonamide

and penicillin therapy which had been continued for at least a week. One thousand units per kilogram were given daily for three to five days. In forty-eight hours, the temperatures had dropped to normal, the symptoms lessened, and the dogs went on to normal recovery. A larger series of systemic conditions in animals is being studied to establish the efficacy of bacitracin.

4) *Other Uses of Bacitracin.*—It has been evident that bacitracin is useful for the treatment of a variety of infections occurring in many tissues and organs of the body. An ophthalmic ointment has been used successfully to clear up many cases of conjunctivitis in dogs. Tablets of bacitracin are now under study for use in the treatment of various intestinal conditions. Diarrhea and bloody stools have been cleared in forty-eight hours after administering up to 40,000 units per day of bacitracin. Further study is necessary to establish the use of this form of bacitracin therapy.

DISCUSSION

In our hands, bacitracin has given extremely good results in the treatment of localized infections and great promise in systemic infections. It was found extremely useful as a product for the veterinarian because of its ease of application as a powder, ointment, solution, or tablet. Gauze strips can be impregnated with bacitracin and placed at the site of any infection. The gauze can be removed easily, as it does not adhere to the traumatized or granulating surface, while the ointment and solution can both be applied directly into wounds to aid in combatting infection and increase the rate of healing.

Bacitracin should be the agent of choice in the treatment of otitis externa, osteomyelitis, traumatic wounds, and many systemic and intestinal infections, because it presents several advantages over penicillin:

- 1) Bacitracin is not inhibited by the organisms which produce penicillinase and is, therefore, more likely to be effective in infections due to bacterial mixtures.
- 2) It is more slowly eliminated from the body.
- 3) Its effectiveness against bacteria is in direct proportion to its concentration.

4) So far, bacitracin has shown less tendency to produce allergic or hypersensitive reactions.

5) Many organisms belonging to groups sensitive to penicillin become resistant to it, but remain sensitive to bacitracin.

It also presents several advantages over streptomycin:

1) It has a wider antibacterial spectrum, particularly with regard to the anaerobic organisms, although it is ineffective against the gram-negative, aerobic nonsporeforming bacilli.

2) It has a much lower development of resistance during the course of treatment.

CONCLUSION

The clinical use of bacitracin in veterinary medicine shows it to be an effective antibacterial agent in the treatment of infections caused by a wide spectrum of pathogens. It can be used as a powder, ointment, solution, or tablet and is relatively nontoxic. It is particularly effective in the treatment of otitis externa, osteomyelitis, and in treating surgical or traumatic wounds. It shows promise in the treatment of systemic and intestinal infections.

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Resistance of Avian Pneumoencephalitis Virus

Lissot and Moessel (*Bull. Acad. vét. France*, Dec., 1949) discuss the epizootiology of Newcastle disease (which they call a variety of fowlpest) in terms of livability of its virus and other factors accountable for its worldwide presence and scattered outbreaks; and they point out, incidentally, that opinions on the mode of dissemination vary with countries and authors. The specific virus survives six months to two years of freezing in the bone marrow of the chicken's carcass, and the skin and viscera of such carcasses contaminate the hands of handlers and objects with which these or any part of the carcass come into contact (sinks, tables, basins, liquids).

In the light of these established facts about the virus, and the ever-convenient hosts (barnyard fowl) to reincubate it, the persistence of the viral fowlpests around the world is understandable, not to mention the unknown role of ecto- and endoparasites.*

Doyle, discoverer of the Newcastle disease virus, reported at the Fifth International Poultry Congress (Copenhagen) that the living bird was the main spreader of the virus, while Dalling (1949) traced three outbreaks in England, in 1927, 1933, and 1947, to the eating of incompletely cooked animal products by flocks not exposed to living chickens (*Bull. Off., Internatl. Epizoot.*, May, 1949). Gordon (*ibid.*, May, 1947) reported a period of livability lasting six months, 267 days, 303 days, and 23 months, according to the mode of refrigeration employed. Four outbreaks in Eure (France), which caused a mortality of almost 100 per cent, were traced to the shipment of poultry from Paris to local markets.

*Since the excerpts above were written, Zarear and Pomeroy, University of Minnesota (J.A.V.M.A., 116, (April, 1950): 304-305) have traced outbreaks of avian pneumoencephalitis in Minnesota to fowlpest and laryngotracheitis vaccines contaminated with Newcastle disease virus, and thus support Lissot and Moessel's contention about the importance of nonliving carriers of the virus.

The critical investigation of this event revealed the controversial status of published reports on natural immunity, vaccination, chicken-embryo reactions (to the virus),† post-recovered carriers, seroagglutination in resistant and recovered birds, each of which, alone or combined, make up a profusion of contradictions to be ironed out before an over-all scientific control program can be instituted.

The Replication of Viruses

The phenomena of d'Hérelle's bacteriophage provide a new approach to the reproductive mechanism of submicroscopic organisms. The article entitled "Bacteriophage: An Essay on Virus Reproduction" (*Science*, May 12, 1950) confirms the known fact that a big technologic gap in the study of viruses remains unfilled. To you and me, even the best definition of the invisible microbes is ambiguous. Describing virus as a being capable of multiplying only within the cells of other organisms in no sense accounts for the epiphenomena of growth and replication. Whether virus units swell up and divide like bacteria or undergo a sort of chemical configuration has not been determined. Both the extracellular and intracellular life of viruses is involved. Says the article, "Early phases of phage production should yield very valuable information." The importance of knowing viruses as we know the figured microbes is self-evident.

Analogue of Infant Diarrhea in Animals?

Dr. Arthur S. Brackett, of Yale University, reports (*Yale J. Biol. and Med.*, May, 1950) that a large number of otherwise healthy infants have noninfectious diarrhea that may be prevented by giving small, concentrated, frequent feedings. The condition is thought to be related to a congenitally small capacity of the large intestine, with an inefficient ileocecal sphincter probably a factor in some cases.

The possibility that such an anatomic fault may be responsible for some cases of diarrhea of unknown origin in animals is worth considering.

†The unreliability of vaccination was attributed to variability in the reaction of the chicken embryo to the viral inoculation used in preparing the vaccine.

An Approach to the Mastitis Problem

(Continued from September JOURNAL)

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TREATMENT

Any discussion of treatment should be preceded by the statement that it is, at best, a last resort when all known available efforts to prevent mastitis, or infection capable of causing mastitis, have failed. Many herds go along well with no treatment, and some of these carry a high percentage of pathogens. Treatment does not immunize against frequent attacks but may prevent trouble if given early and if correct methods are employed in relatively undamaged quarters.

We feel that a veterinarian should use treatment intelligently, and always have in mind whether he is really causing or curing infection and mastitis. Too much stress can not be laid upon the subject of surgical asepsis when preparing material for udder infusion and when using instruments which are to be carried from cow to cow, and from herd to herd. It is entirely different from the degree of asepsis that accompanies a blood test or a tuberculin test. In a few instances, we fear that veterinarians, as well as laymen, have unintentionally introduced pathogens such as *Pseudomonas aeruginosa* into cows' udders. These, or the various *Clostridium* organisms, might cause damage, and we know that the *Pseudomonas* organisms are almost impossible to remove by treatment.

The value of penicillin,* a water-in-oil emulsion, was emphasized by the results of a few assays of the amount of penicillin left in udder secretions after infusion. Other preparations of a similar nature, where some imitation of a water-in-oil emulsion was made, were also used freely. Emulan,** is a somewhat similar product. Emusul** is said to be similar and also contains 5 per cent sulfathiazole. Sulfonamides** containing 20 per cent sulfanilamide, 5 per cent sulfathiazole, and penicillin in

suitable amounts, are usually added to each of these products. We have not been able to conduct assays on these three last named products.

DETERMINATION OF PENICILLIN LEVELS

Determination was made of penicillin levels in milk at twelve to seventy-two hours after use of four types of penicillin infusion material. A commercial laboratory† which generously supplied us with penicillin in a special gel for udder infusion offered to assay milk samples drawn at intervals of twelve, twenty-four, forty-eight, and seventy-two hours after infusion. Four of the common products used as vehicles for carrying from 75,000 units to 260,000 units of penicillin were infused in a few purebred Guernsey and Holstein-Friesian cows that were nearly dry and were not being milked regularly. The udders of several lactating cows were also infused and milked twice daily. All cows carried some pathogens in their udder secretions and showed varying degrees of chronic mastitis.

All four products, whether they consisted of 7.5 Gm. of ointment, or a water-in-oil emulsion,* or the special gel† of 3 per cent aluminum monostearate in peanut oil, gave astoundingly high levels of penicillin as determined in units per cubic centimeter of milk at twelve to forty-eight hours after infusion. A small dose, 75,000 units of penicillin calcium in ointment†† assayed from 23 to 119 units per cubic centimeter at twelve hours, still gave a reading of 0.2 to 2.4 units at forty-eight hours in lactating Guernsey cows and at seventy-two hours showed 0.2 to 0.4 units. It is believed that 0.1 unit per 1 cc. of milk is effective in inhibiting growth of most common udder pathogens, although no one ap-

*Bristol Laboratories, Syracuse, N. Y., prepared and furnished generous supplies for experimental work and now sell it as procaine penicillin G in oil.

††E. R. Squibb & Sons, New York City, supplied majority. Tubes also supplied by Lederle Laboratories, Pearl River, N. Y., and Pitman-Moore, Co., Indianapolis, Ind.

*Wallace Laboratories, New York City, generously supplied this product.

**These were supplied by the Syracuse Pharmacal Co., Syracuse, N.Y.

parently has shown conclusively that much larger amounts in the milk within the udder may not be more effective.

Assays of milk samples at twelve hours after the infusion of quarters with 10 to 20 cc. of penic, the water-in-oil emulsion, plus 200,000 units penicillin (crystalline G) yielded 27 to 400 units of penicillin per 1 cc. of milk. The same vehicle and dosage of penicillin, at seventy-two hours after infusion in dry cows, showed 0.2 to 18.0 units per 1 cc., and in lactating cows, 0.2 to 9.0 units.



Fig. 7—The half of inflation on left is covered with milk stone and loaded with fat, with resultant bulging and inelasticity. The half on right has been boiled in lye solution and made safe to use.

With the procaine penicillin in the gel, the reading at twelve hours in dry cows was 84 to 1,680 units per 1 cc., and in lactating cows was 0.2 to 2.2 units per 1 cc. of milk at seventy-two hours after infusion in spite of the fact that the cows were milked regularly, as with all of the four agents used.

This small experiment lends support to the belief that any one of these various types of penicillin, if injected in one of these vehicles, maintains an effective level for seventy-two hours. The producers of

procaine penicillin have indicated that it remains in the udder longer. This had led practitioners to buy a free-flowing procaine penicillin and add this product directly to peanut oil and inject after moderate agitation. It is our observation, although we have not used this procedure, that such a mixture is not effective where practitioners have employed it in removing pathogens from a high percentage of quarters. The percentage of recoveries has been as low as 21.5 per cent in staphylococcal infection and 46.9 per cent in streptococcal infection. It is possible that the presence of penicillin in milk at time of assays, such as these, does not mean that the penicillin actually contacts the bacteria. While this is suspected in the procaine penicillin mixtures, the results of the use of the special gel containing procaine penicillin, as shown below, are good.

RESULTS OF TREATMENTS

Special Procaine Penicillin Gel.—Fountain, in the ambulatory clinic in 1948-1949, used a limited amount of special gel on 50 quarters in five herds. The product was used experimentally and was not purchasable at that time. The procaine penicillin was present at the rate of 10,000 units per 1 cc., and potassium penicillin (crystalline G) at the rate of 3,000 units per 1 cc. Half of this gel contained only procaine penicillin, no potassium penicillin. Fifty quarters, of which 8 showed *Streptococcus agalactiae* and 42 showed other streptococci, were infused with 10 to 20 cc. of this stable, ready-mixed procaine penicillin gel, and 43 (86%) of the 50 quarters were found free of those infections in samples taken from nineteen to sixty days postinfusion. Hemolytic staphylococci were apparently removed by the single infusion of 10 to 20 cc. of this product from 28 (71.5%) of the 39 quarters treated in four herds. The dosage of penicillin varied from 100,000 to 260,000 units per infusion per quarter.

The advantages of preparations of this type (and petrocillin is the trade name for a somewhat similar product that is being sold) are that no mixing and no syringes to insert aqueous solutions are needed, thus reducing chances for contamination. Great stability is maintained at varying temper-

atures, and time required for preparing and using is less.

Penicillin in an Oil-in-Water Emulsion (Penicle).—The results of the use of penicillin in this new vehicle by one of our field veterinarians (Tucker), in cooperation with local practitioners, were so phenomenal that when he reported his experiences in 1948,¹¹ I urged him to defer publication until further trials were given the material.

Dr. Udall¹² reported favorable results following a single infusion of 100,000 units of penicillin in 20 cc. of penicle on 76 quarters in a very high-producing Guernsey herd. A few quarters received two or more infusions at varying intervals. His data showed that 54 of the quarters treated had 1,000,000 to innumerable cells on direct smear of uninoculated pretreatment milk samples, and at least 13 of these quarters still showed a high cell count after apparently being freed from infection and abnormal secretion. Pretreatment samples showed *Str. agalactiae* in 34 quarters of which 100 per cent were removed, usually by one infusion. Six-

teen showed non-*agalactiae* streptococci and 15 (93%) of these were readily removed. Nine quarters contained hemolytic staphylococci and 7 (77%) were removed, two of them being quarters that also carried *Str. agalactiae*. Eighteen quarters showed no infection, perhaps because the quarters had been treated before sampling, using some other agent, or because the mastitis or suspected mastitis was not associated with recognizable infections. They were also infused, with apparent clinical recovery. Twelve quarters showed infections other

than those present on pre-injection treatment on samples taken one or two months after treatment.

In 1949, in discussing mastitis in 5,313 quarters, Delaney¹³ reported upon extensive use of this product in unknown infections in acute and chronic mastitis in cows treated by him in New Jersey. Excellent clinical results were secured in lactating cows. Tysin,¹⁴ an aqueous tyrothricin solution, was used by him on dry cows, usually re-treating quarters previously treated with penicillin in penicle while the cows were lactating. Many practitioners in the East state that they rely almost entirely upon penicillin in oil-in-water emulsion unless dealing with very septic or acute cases. Stults and Foley¹⁵ did most of the original work for the company which developed the product and deserve credit for producing a superior vehicle. In two or more instances, several normal quarters in a herd became hard and mastitic for several days after penicillin in penicle was used. The cause was not discovered. We consider it an ideal product for infusing the normal quarter that carries a pathogen or for slight to severe cases. Production is usually increased rather than decreased following treatment, and no abnormal milk is caused by treatment. The treatment is

TABLE 8—Herd S, 72 Cows

Class	2/16/49 Percent	3/10/49 Percent	4/8/49 Percent	5/25/49 Percent	6/16/49 Percent	11/21/49 Percent
2	61	82	82	88	84	91
3	37	18	18	12	15	9
4	2	-	-	-	-	-
Abn. Secr. Cows	25	7	11	6	4	0
S. Ag. Quarters	No. 33	No. 7	No. 7	No. 3	No. 2	No. 3

teen showed non-*agalactiae* streptococci and 15 (93%) of these were readily removed. Nine quarters contained hemolytic staphylococci and 7 (77%) were removed, two of them being quarters that also carried *Str. agalactiae*. Eighteen quarters showed no infection, perhaps because the quarters had been treated before sampling, using some other agent, or because the mastitis or suspected mastitis was not associated with recognizable infections. They were also infused, with apparent clinical recovery. Twelve quarters showed infections other

generally accepted as being safe under all conditions. The only caution is to be sure that the aqueous diluent added to the penicillin in 3- to 5-cc. amounts and the equipment are sterile.

Tucker¹¹ used 100,000 units of penicillin (crystalline G and amorphous) in 20 cc. of this product as a single infusion of 174 quarters on 95 lactating cows in 16 herds. The mastitis was rather severe as evidenced by the fact that 5 class 4 cows were treated and that 34 (19%) of the quarters were rated as D+ (distinct to marked fibrosis). There was abnormal milk with no infection in six quarters. Forty-three showed hemolytic staphy-

*Jensen-Salsbery Laboratories, Kansas City, Mo.

lococci, and 125 showed various types of streptococci. The recovery rate was 86.2 per cent for all quarters treated, being the same for either infection. Complete bacteriologic recovery or clinical improvement was observed in 164 quarters (94.2%). If the 5 class 4 cows had been excluded, complete (clinical and bacteriologic) recovery would have been 91.3 per cent.

He used the same therapy on 21 dry cows in 12 herds. Of 45 infected quarters, 29 showed streptococcal infection, 15 hemolytic staphylococcal infection, and one *Pseudomonas*. The presence of 12 (26%) D+ quarters show that severe mastitis was present, and yet the complete recovery rate was 86.6 per cent, and the complete recovery and clinical improvement was 93.3 per cent, almost exactly the same results which were obtained in lactating cows. The weakness in these data is that only one pre-injection culture was possible in many instances, the exact types of streptococci remain unknown, and there was but one post-treatment sampling possible.

Studdert in 1947-1948, in the ambulatory clinic, used the same dosage and material that was employed by Tucker but gave from one to three injections at 24- to 72-hour intervals. He infused 13 quarters in four herds (each quarter known to have *Str. agalactiae* infection) and secured cultures from one to three times at twelve to sixty-two days post-treatment with 12 (92%) recoveries. He secured 83 per cent recovery in hemolytic staphylococcal infection, using 10 cc. of penicillin with

200,000 units of penicillin on 55 quarters in seven herds. These staphylococcal-infected quarters were re-treated one to three times at 24- to 72-hour intervals also and recultured once or twice. The recovery rate was 85 per cent in 31 quarters recultured but once, twelve to twenty or more days after treatment.

Another field veterinarian (Reed) repeated the experiment in western New York with 20 cc. of penicillin and 200,000 units of penicillin on 57 quarters infected with *Str. agalactiae* in a fine Holstein-Friesian herd with 95 per cent recovery after two infusions at a 24-hour interval. With 10 quarters carrying other (non-*agalactiae*) streptococci, only 70 per cent recovered. No infection was found in 11 other quarters in this herd and the abnormal secretion was overcome in 91 per cent of all quarters showing abnormal secretion. These quarters were recultured two and one-half months after treatment, which would add significance to the results, since recovery in all cases is used to mean normal secretion and no bacterial growth.

In another herd, he used 100,000 units in 20 cc. of penicillin twice at a 24-hour interval on 19 quarters with *Str. agalactiae* infection, which resulted in 78.9 per cent recoveries. The herd was in rather bad condition on mastitis and 5 advanced cases were sold. In that herd, he used the same treatment on seven hemolytic staphylococcal-infected quarters with 85 per cent recovery. Three quarters in this herd with coliform infection, but



Fig. 8—Inadequate bedding and a platform that is too short are conducive to injury of udder and teats.

with normal secretions, were freed apparently by the use of 0.5 Gm. of streptomycin and 20 cc. of penicil twice at a 24-hour interval.

A third herd studied by Reed was essentially a problem herd from hemolytic staphylococci, since 24 quarters on 12 cows in a herd of 20 carried that infection on Feb. 10, 1949. Three quarters had mastitis. Each of the 24 quarters was infused twice with 200,000 units of penicillin in 20 cc. of penicil at 72-hour intervals with 70 per cent recovery. The milk returned to normal in the three mastitic quarters, but two others showing no infection when recultured twenty-six days later (1 showed hemolytic staphylococci when treated) had abnormal secretions. On a second post-treatment culture, nearly three months after infusion, the 12 head that were treated showed no abnormal secretion, two quarters yielded the same infection again, while three additional staphylococcal quarters had cleared spontaneously.

Fountain, in 1948-1949, in the ambulatory clinic, treated six quarters infected with non-agalactiae streptococci and the same number with hemolytic staphylococci. These infections were in large udders of very large Holstein-Friesian cows, several of which were producing heavily. A single culture, twenty-three days after infusion with 200,000 units of crystalline G penicillin in 20 cc. of penicil, showed that 100 per cent had recovered. In a Guernsey herd, he used 10 cc. of penicil with 200,000 units of penicillin and freed three hemolytic staphylococcal and two *Str. agalactiae* quarters with a single infusion.

Table 8 shows the excellent progress that was made in an apparently hopeless problem herd after Drs. H. G. Hodges and W. G. Hoag encouraged the owner and his local veterinarian to really concentrate on what could be done by good management and treatment. Infrequent surveys had been made for more than a year, but there had been no well-planned effort to improve all of the environment or to treat all infected and mastitis quarters after each survey. Considerable

home treatment and treatment of severe cases by the veterinarians had done very little good. The owner and the veterinarian were inclined to consider the mastitis problem too serious to be solved.

At the time of a complete official herd survey in February, 1949, it was found that milking machine sanitation was bad. New inflations were secured and correct methods of keeping them clean were instituted. It was decided to treat all quarters showing streptococcal infection and all that showed abnormal milk after each survey, and to reculture the entire herd of 72 cows within a month after each series of treatments. The number of quarters requiring treatment was high (60 quarters) after the first survey, but relatively few quarters required treatment at each of the five subsequent treatment periods.

The treatment used was 100,000 units of penicillin in each infected quarter in 20 cc. of penicil, repeated in seventy-two hours. A few coliform quarters received 0.2 to 0.5 Gm. of streptomycin in 20 cc. of penicil, and this was repeated at seventy-two hours. Thirteen cows showed hemolytic staphylococcal infection in 21 quarters, and 71.5 per cent recovered with this treatment regime. There were 28 untreated quarters on 15 cows that harbored these staphylococci and, with no treatment, 32.1 per cent became free from infection from December, 1948 to February, 1949.

It will be noticed in table 8 (herd S) that the number of cows giving abnormal milk was reduced from 25 to none during a period of nine months. During the same period, the quarters yielding *Str. agalactiae* were reduced from 33 to 5, or from 11 per cent of the quarters in the herd to 1 per cent. It was necessary to sell 5 mastitis cows to secure this phenomenal result. The problem now confronting our personnel and the owner is to maintain the present high standard of efficiency. In some herds this has, over a period of years, proved difficult. Good herd management, including all preventive measures, and the use of antibiotics in penicil at frequent intervals

TABLE 9—Herd L, Experiment with Penicil in Poor Environment

Culture and Date	S. Infected Cows						(*CAMP Method)		Qtrs. Sold	Cows Abn. Secret.		Clin. Mastitis Cases Since Last Survey	Cows Sold
	S.		Total				Qtrs. S. Ag.			No.			
	No.	No.	No.	No.	No.	No.	No.	No.		No.			
11/10/48	18	50	6	17	24	67	60	43	0	1	3		
1/13/49	11	32	20	29	21	61	54	40	0	5	15		1
(Blanket Treatment 1/22, 1/23/49)													
2/7/49	2	6	-	-	2	6	2	1	1	1	3	0	0
3/9/49	1	3	1	3	2	6	2	1	1	1	3	2	1
5/13/49	4	11	1	3	5	13	-	-	0	1	3	1**	0
8/9/49	4	11	4	11	8	22	3	2	1*	1	3	2**	0
12/13/49	8	22	3	8	11	30	5	3	2	2	6	2***	1

Qtrs. = quarters. *1 Pseudomonas-infected quarter. **Several puffed quarters, no abnormal milk. ***Several puffed quarters with someropy milk.

offer some help in accomplishing the desired results.

Penicil in Blanket Treatment.—A herd of 36 purebred Holstein-Friesian cows, with an average yearly production of 9,500 lb. of milk, received special attention from Drs. Hodges, Gumaer, Roberts, and a local practitioner in an experiment with penicil. Five to 6 cases of clinical mastitis were re-

CHART 2—Quarters Treated with 100,000 Units of Penicillin Plus 20 cc. of Penicil, 1-22, 10:40-11:45 a.m.; 1-23, 4:30-8:00 p.m.

Sampling 11/18/48, 1/13/49	2/7/49 Sampling after treatment
Quarters infected	recovery rate (%)
1 Str. NAG* staph.	0
1 H. Staph.	100
6 Str. NAG	100
53 Str. agalactiae	100

*Str. NAG = nonagalactiae streptococci.

ported yearly. Four flare-ups occurred the month prior to the initial survey. The average age of the herd was 7.4 years. Stabling conditions were not ideal from the standpoint of udder health. Stall beds were dirty and wet (insufficient bedding). Barnyard was very muddy (spring seepage) and full of protruding rocks.

All replacements were home grown. No method of interrupting the cycle of spread of infection from cow to cow was practiced. After initial treatment procedures, teat cups were not dipped. Individual paper service towels were adopted for a short time and teat ends were dipped for a short time, but neither of these procedures were being carried out at the time of the last examination. However, udders were wiped with warm solution of chlorine using one towel for all cows after the depletion of supply of paper towels.

On Jan. 21, 1949, all quarters were treated on the basis of two bacteriologic samplings conducted Nov. 18, 1948, and Jan. 13, 1949. Sixty-one quarters were treated, using 100,000 units of crystalline penicillin in 20 cc. of penicil. First treatment was carried out Jan. 22, 1949, and the second treatment on the next day. Clinical examination of the quarters treated was made the day following the last treatment series. Physical examination of the milk did not reveal any gross changes.

Three cows in the latter stage of lactation showed green bromthymol blue reactions. There was no swelling of quarters, no drop in production, and no flakes on the strainer cloth. However, some slimy feel to the strainer cloth was observed. This disappeared the next day.

Of the quarters treated, there was practically 100 per cent recovery in all cases (chart 2).

Resampling on March 9, 1949, showed a slight incidence of reinfection. At that time, two quarters

were showing *Str. agalactiae* and 6 per cent of the cows were infected with streptococci. On May 13, 13 per cent of the cows were infected with streptococci. One showed clinical mastitis which was treated after the March 9 survey. Two quarters showed clinical mastitis after the February 7 survey. These were treated. At the examination May 13, several puffed quarters were reported, but no abnormal milk was observed. These slightly edematous quarters were not related to specific infection, as determined by sampling on that date. On August 9, infection other than *Str. agalactiae* became more evident. Two cases of clinical mastitis had been treated since the last examination, and puffy quarters continued to show. On Dec. 13, 1949, streptococcal infection was present in 30 per cent of the cows. *Str. agalactiae* infection was present in 3 per cent of the quarters and coliform infection was present in two quarters. Abnormal secretion was up to 6 per cent, yet clinical mastitis was not an economic problem in this herd.

The dipping of teat ends and the use of individual service towels had been discontinued. The stall beds were very wet due to insufficient bedding on the rear platforms. These are possible reasons for the rate of re-infection which has taken place following this blanket treatment in January, 1949.

The treatment of bacterial infection in the udder alone, without careful attention to the factors of sanitation and good milking management, did not result in complete mastitis control, as re-infection occurred under the conditions present on this average farm. This showed clearly the limitations of even the most effective known treatment agents in the presence of fair-to-poor environmental conditions. The herd, however, can still be made free of *Str. agalactiae* infection if further treatment and thorough disinfection of the stable are insisted upon.

The expense item occasionally interferes with a herd treatment procedure, since what was done in this herd normally would cost about \$125 to \$150 for material and services.

Table 9 shows the amount of various infections and abnormal secretion before and after treatment.

Other Agents Tried Against Staphylococci.—Drs. Johnson and Fountain, in the ambulatory clinic in 1948-1949, infused 20 cc. of 5 per cent sodium sulfathiazole in an oil-in-water mixture, previously referred to as emusol,** with 200,000 units of penicillin twice at a 48-hour interval. This was tried in 14 quarters in a small herd where acute and chronic staphylococcal mastitis was a problem in the absence of any streptococci. Eleven (78%) of these seriously involved quarters were freed of infection, but they did not all remain normal. Three similar

quarters were given two tubes each of 75,000 units of penicillin sodium in ointment^{††} repeated at forty-eight hours, with 100 per cent recovery.

In the same large herd where Reed treated 57 *Str. agalactiae* quarters, he infused 22 hemolytic staphylococcal quarters with 300,000 units of penicillin plus 50 cc. of sulfonamides^{**} twice at a 48-hour interval; and one month later, 82 per cent were still free of infection. Exactly the same success, when treating staphylococcal infection in 17 quarters, was secured by him in the use of 200,000 units of penicillin plus 40 cc. of merameth^{***} solution used twice at forty-eight hours and recultured one month later.

Treatment of Acute Mastitis (Coliform Infection).—F. H. Fox, in the ambulatory clinic in 1948-1949, used 80 to 100 cc. of merameth solution with 100,000 to 200,000 units of penicillin plus 0.2 to 0.5 Gm. of dihydro-streptomycin in 12 cases of pure coliform or coliform plus streptococcal or staphylococcal infections. All but 2 cases were acute and 2 were septic and fatal. Seven (54%) were freed of coliform and made satisfactory clinical recoveries. Two were sold, 2 died, and 1 was discouraging or hopeless because of much fibrosis in a very large udder. Ice packs, tonics, streptomycin, or penicillin intramuscularly and sulfanilamide orally were used as supportive treatments. Several more cases of coliform mastitis have been treated in the ambulatory clinic with streptomycin with fair success.

Acute Mastitis (*Pseudomonas* Infection).—Fox used various infusion agents, especially the formula just described which was used on coliform cases, on 4 acute mastitis cases where *Pseudomonas* was the predominant infection. In addition to this treatment, he tried 200,000 units of penicillin and 0.2 Gm. of streptomycin in 7.5-Gm. tubes of ointment^{†††} penicillin in penicillin, and acriflavine as infusions. The usual supportive treatments were applied. One case responded well, 1 very slowly, and 2 died or were worthless.

Our field veterinarians have found several herds where acute mastitis cases that were

generally incurable were associated with *Pseudomonas* infection. Usually, there has been a great amount of treatment by laymen in these herds, using various kinds of sulfonamides and penicillin in syringes. Gumaer¹⁵ reported actually locating this



Fig. 9—Such muddy yards and acute mastitis are often seen together. Concrete aprons at entrance or entire concrete yards protect udder from filth.

organism in the Champion syringe with rubber plungers being used for infusion by one dairyman. Tucker¹⁴ has published a detailed case report where 15 quarters on 9 cows were seriously infected. The only difference was that in his herd the bottle of saline, instead of the syringe, was found to contain a pure culture of *Pseudomonas*.

The herd studied by Gumaer in 1948-1949, was composed of 26 especially good Holstein-Friesian cows. The owner had secured penicillin and saline from the local feed store and used a Champion syringe for the infusion of this material in 47 quarters. Some were given one infusion and others several infusions, since serious acute and chronic mastitis cases were present and were treated in this manner for several months. A local practitioner then was asked to supervise the treatment after the udders in the herd had reached a rather hopeless state because of the failure of clinical mastitis to improve. He decided

^{**}This product, a 5 percent aqueous solution of sodium sulfamerazine plus 5 per cent sodium sulfamethazine, was supplied by Sharp & Dohme Laboratories, Glenolden, Pa.

^{†††}Pitman-Moore Laboratories, Indianapolis, Ind.

rather soon that treatment gave unusually poor results. Gumaer was asked by the practitioner to determine the nature of the unusual problem and the first complete survey was made in August, 1948. It revealed, among other things, that six quarters carried the *Pseudomonas* infection, and that 38 per cent of the cows were giving abnormal secretions. Four more surveys were made during the next eight months and showed from two to nine quarters with *Pseudomonas* infection at each survey although 2 cows with this infection were sold after the third survey. There was a drop of 17 per cent in the number of cows with abnormal secretions at time of last survey at the end of eight months, and the owner felt that production had increased and mastitis had greatly decreased. General hygiene was improved and various treatments, including penicillin in penicle, were used. That any treatment has little value in herds with this infection is shown by the fact that there were many, 21 per cent of the cows, still giving abnormal secretions, and several had distinct-to-marked fibrosis. There was a very low incidence of streptococcal or staphylococcal infection in this herd at the time of the first and subsequent surveys. It is possible that damage had been done by these infections and they had been removed by the penicillin.

A second herd, given thorough study starting in December, 1948, by Dr. S. D. Johnson, had a similar history of high production in especially well-bred Holstein-Friesians and much home treatment by the attendants and owner without veterinary supervision. They had secured ointment tubes and syringes from two companies for the infusion of sulfonamides, penicillin, and other agents, and after unsuccessfully treating acute and chronic cases for several weeks had enlisted the local veterinarian's help. The problem was considered unusual by him and on the first official survey by Johnson, 16 (44%) of the 36 cows were giving abnormal secretions. The types of infection were: 34 quarters (38%) *Str. agalactiae*; 13 quarters (9%) hemolytic staphylococci; 4 quarters (3%) coliform; and 12 quarters (8%) *Pseudomonas*. The incidence of *Pseudomonas*-infected quarters remained high in this herd during the next eleven months with the following number of infected (*Pseudomonas*) quarters being found on successive surveys: 12, 13, 13, 10, 19, 16, and 16. The *Str. agalactiae* quarters were reduced to 7 per cent of the 34 head in the herd on Nov. 11, 1949. The abnormal secretions, which were less severe, still involved 8 cows (23.5%) of the herd. These results seemed good to the dairyman, since he was able to continue to make good records and the number of cows with abnormal secretions at the end of the 11-month period had been reduced 50 per cent. Various treatments were given especially thorough trials by the local veterinarians and Johnson, and all of the treatments, including penicillin in various vehicles, streptomycin, trypanflavine, bacitracin, and

aureomycin, failed to do more than improve the quality and production and eliminate much of the infection other than *Pseudomonas*. Several quarters carrying this infection showed nothing clinically, and yet several have shown acute and chronic mastitis apparently due to *Pseudomonas* infection.

In these two herds, the water supply was suspected, but cultural results failed to support the suspicion that this was the source of infection. Coliform organisms were found in the water supply on this latter farm, and on each survey this organism was recovered from cultures of milk from two to seven quarters.

It appears to the field staff that this type of infection is becoming more common since the quaternary ammonium compounds have become popular as agents for cleaning milking machines. The rubber teat inflations are not boiled or soaked in lye, and *Pseudomonas* is one organism that is resistant to quaternary compounds.

Symptoms in sporadic cases of *Pseudomonas* mastitis vary from slight, persistent mastitis to acute cases with varying degrees of septicemia, and even necrotic mastitis with a slow enucleation of the gland tissue. A few fatal septic mastitis cases have apparently been caused by *Pseudomonas*. The total damage from *Pseudomonas* infection in the herds of the state is not great, but as a herd problem and an individual cow problem it warrants detailed research.

OTHER USEFUL TREATMENTS

Studdert and others in the ambulatory clinic have used large quantities, first of 10 per cent and later of 25 per cent sodium sulfamethazine,¹¹ both in the udders as infusions and intravenously in mastitis. In one experiment, Studdert infused 30 quarters, some once and others twice at 24- to 72-hour intervals, using 100,000 units of penicillin in 50 cc. of 25 per cent sodium sulfamethazine. The pretreatment cultures showed four quarters with no infection (abnormal secretions present) and 26 quarters with various streptococci present. Cultures were made twice on 17 quarters. The rest were sampled once, twelve to sixty-two days after the treatment, and 100 per cent made complete bacteriologic and clinical recoveries. This treatment is useful but requires large amounts of diluent, usually several infusions, and on rare occasions causes abnormal milk (clots and flakes) in infused quarters that were giving normal milk when infused. These slight reactions are transient and harmless but are annoying. In a few septic mastitis cases, oral and intra-

¹¹Lederle Laboratories, Pearl River, N. Y., supplied this sulfonamide.

venous use of sodium sulfamethazine with udder infusions proved useful.

Infusion from Ointment Tubes.—Dr. F. H. Fox and the writer used one of the early experimental herds to test the efficiency and convenience of this method of treatment in cows that carried many pathogens and whose udders were reasonably sound with few abnormal secretions. Mastitis had been very serious in the past in this herd, but the incurable, advanced cases had been sold. We used ointment¹¹¹ from 7.5-Gm. tubes with 225,000 units of penicillin in 62 quarters on 37 cows twice at a 24-hour interval. The lactating cows were milked regularly and the few dry cows were not milked. Two pretreatment cultures of the entire herd were made and these quarters selected for treatment were, in that way, probably shown to be definitely carrying infection. The quarters that were giving abnormal milk returned to normal promptly, and no unfavorable reaction occurred in any quarter. Great care was taken to warm the tubes to 110 F. in a quaternary ammonium compound solution, then to drop them in rubbing alcohol just before they were picked up to be squeezed into the teat. The

udders were washed carefully in chlorine or quaternary ammonium compound solution and each teat end carefully swabbed in alcohol just before infusion was made. This careful cleaning of the udder and teats is a technique that we have attempted to use in all herd treatments.

Infection in 23 quarters (13 cows) with *Str. agalactiae* was, as shown by quarter samples taken nineteen days after treatment, reduced to two quarters on 1 cow, a 91 per cent recovery rate. A 50 per cent recovery was obtained in eight quarters on 8 cows with non-*agalactiae* streptococci. A 93 per cent recovery rate was secured in 30 hemolytic staphylococcal infected quarters on 15 cows. One coliform quarter failed to show infection after treatment. It would have been highly desirable to be able to present data on more frequent post-treatment cultures, but all quarters have remained free from flare-ups for six months. This method of infusion for slight mastitis or for frequent follow-up treatment between calls on isolated, severe cases has much to support it. It completely avoids the use of a contaminated cannula or syringe and is the quickest and simplest method, unless bougies are used. It deserves further trial in those herds where infusion must be delegated to a nonprofessional person, and if

¹¹¹E. R. Squibb & Sons, New York City, supplied this material.

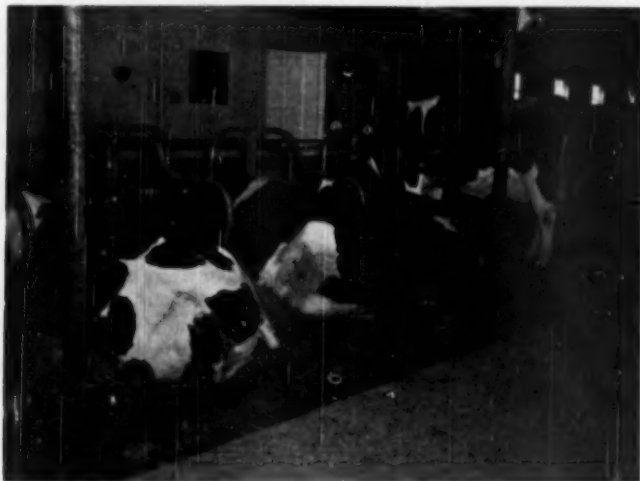


Fig. 10—A comfortable "tie-stall" stable, showing important pipe to hold cows back when standing, so that droppings reach gutter. Cows are clean and udders are protected on well-bedded platform.

other materials such as streptomycin or aureomycin prove as useful and safe as they appear to be, tubes containing combinations of antibiotics may become highly popular and effective. They have the obvious disadvantage that the handling of mastitis control or treatment is made to look simple to the untrained. Each case and each herd requires special study as to etiology and procedures for control, so that lay treatment should be discouraged except under rigid supervision of a competent veterinarian with laboratory service available if he needs it.

Silver Oxide Ointment.—Twenty-seven quarters on 13 dry or springing cows with advanced, chronic mastitis, and histories of repeated flare-ups that warranted an unfavorable prognosis, were infused by Fox using one-half the contents of a 7.5-Gm. tube of novoxil (5% silver oxide) ointment.¹¹¹ Two quarters received a full tube, and one more than a half with no serious reaction. Slight reactions occur in some quarters, and at the end of three days after infusion the secretion should be removed. Three days later, the quarter is milked out again and, if the secretion is not reasonably like milk, retreatment at this time is indicated. Any quarter that shows an unusual reaction may be milked out at twelve hours after any infusion. These precautions avoid adhesions and strictures of the teat cistern. In all of these cases, the fibrosis was not increased but was apparently less six months after infusion.

Eleven (84%) of the cows showed complete clinical recovery in all quarters treated, but 1 showed chronic trouble in an untreated quarter. Bacteriologic studies were incomplete, as 6 cows did not receive pretreatment cultures. The usual non-*agalactiae* streptococci and hemolytic staphylococcal infections were present, often in combination in the same quarter, with one coliform-infected quarter among the 16 quarters on 7 cows. Cultures made as late as six months after treatment showed that 11 of the 27 treated quarters were negative. The remaining 16 quarters on 8 cows showed various pathogens, some of which could have been picked up during the long post-treatment interval. The results were excellent, clinically, since each cow started to give milk normal in appearance at once after parturition. Two are still serious problem cows in treated quarters. Further

treatment would, no doubt, remove the few remaining pathogens. A 2.5-per cent silver oxide ointment in 7.5-Gm. tubes is now being used effectively in these rather hopeless chronic cases.

Combined Treatments.—Dr. D. H. Udall kindly gave me access to the case records on 9 cows where 30 quarters were infected with the usual pathogens and where mastitis was acute, serious, or advanced and chronic. These cases are cited to show that persistence in treatment, using first one infusion agent and then another over a period of years, will often surprisingly terminate with a useful cow that is capable of high production.

These cases were infused from once to 27 times, and final cultural examinations were made on June 1, 1949. The agents used included 50 cc. of 10 to 25 per cent sodium sulfamethazine (in 2 cows 0.5 Gm. of streptomycin in 20 cc. of penicillin was effective in each of 5 quarters with acute mastitis suspected of being due to coliform infection), sulfanilamide in oil, aqueous penicillin, and 20 cc. of penicillin plus 100,000 units penicillin. Five cows still showed pathogens at the end of all this treatment, but *Str. agalactiae* was present in but one post-treatment quarter sample. The important thing is that cows from the second to the tenth calving were kept producing by repeated logical treatment.

Bacitracin.—This antibiotic has been used largely in sterile distilled water and a small amount has been used in penicillin. It is suggested by those* who supply it that physiologic saline is the vehicle of choice. Drs. S. D. Johnson and E. L. Fountain have observed no unfavorable reactions from the use of 20,000 to 50,000 units of bacitracin in 50 cc. of distilled water repeated three times at 24-hour intervals; in 20 to 25 cc. of penicillin once or repeated at 48-hour intervals; or from its use in 25 cc. of saline twice at 24-hour intervals. The material was used on 15 quarters of 10 cows (8 Holstein-Friesians, 1 Jersey, and 1 Guernsey) in three herds. Clinical mastitis was present in six quarters and all were lactating. Hemolytic staphylococci were present in seven quarters, non-*agalactiae* streptococci in two, and *Str. agalactiae* in one. Pseudomonas and coliform were present in one

*Generously supplied by Upjohn Company, Kalamazoo, Mich.

advanced mastitis quarter, and *Pseudomonas* alone in two others before treatment. In one normal udder, two quarters were freed, one of *Str. agalactiae* and one of non-*agalactiae*, using penicil as the vehicle. Three others showed slight clinical improvement, but there was no change in the bacteria in the milk on samples taken about twenty to forty days after infusion.

We had the misfortune to have one of the demonstration herds treated with 25,000 units of bacitracin and 100,000 units of penicillin in 7.5 Gm. of ointment in tubes with cannula tips. In this herd, where there was very little clinical mastitis before treatment, 41 quarters on 26 cows were infused to eliminate pathogens from the secretions, a herd-treatment program. Within a few hours after infusion, 25 quarters appeared to have acute mastitis and 15 cows could not be milked with a machine for a few milkings. Apparently, very little permanent damage has followed this undesirable reaction, but the owners who urged the use of the treatment were very dissatisfied with the results. The experience suggests that new products should be tested on small groups of cows and not by practitioners on valuable commercial or purebred herds.

It is possible to develop data that appear to prove that a given antibiotic is especially effective in particular vehicles or in combinations with other agents. The mere fact that all workers shift frequently to new agents for infusion indicates that none are entirely satisfactory in all degrees of mastitis and in all infections.

We have always urged that milk from infused quarters should be discarded for seventy-two hours after infusion if oily vehicles were used. Obviously, it must be discarded if not natural in appearance.

HERD RESULTS ENCOURAGING

Gumaer and Tucker took over a herd where mastitis had been a serious problem in January, 1947, and the following encouraging results were secured. This herd was examined initially on Jan. 29, 1947. Eight examinations have been made at approximately quarterly intervals since that time. A summary of the findings is tabulated in chart 3.

The total benefits derived from the institution of the mastitis-control program in this herd are not too evident from this

summary. In the year previous to initial examination, 6 acute cases of mastitis occurred. After two years of control work, none were reported during one year.

An analysis of the turnover of cows in this herd also is favorable. In 1947, 4 cows with mastitis were sold. Two, sold for poor production, also were harboring strep-

CHART 3—Summary of Herd Treated from January, 1947 to April, 1949

Examination date	Abnormal secretion (%)	Quarters with	
		streptococci (%)	staphylococci (%)
1-29-47	9	7	12
5-28-47	14	4	2
10- 7-47	0	3	5
1- 8-48	13	3	3
4- 6-48	9	5	3
7-15-48	4	2	0
12-15-48	9	2	0
4-20-49	4	2	0

ptococci in one or more quarters. Three were sold for sterility or other diseases. One was sold because of poor production. In 1948, 3 cows were sold because of poor production only, with no history of mastitis.

This herd has led the Dairy Herd Improvement Association in production in a large county during the last year with more than 13,000 lb. of milk per cow on two-times-a-day milking. These cows are fed heavily. Stall beds in this barn are adequate for the majority of cows, being 60 in. long by 42 in. wide on one side which stables young cows or heifers. The larger cows are kept on the side where the stall beds are 64 in. long and 48 in. wide. Pipe partitions separate the cows. The bedding is liberal and adequate. Prior to initial examination, most additions were purchased from auction sales. Now, most of the additions are raised. The milking machines have always been maintained in good repair. The dairyman has given strict attention to good milking management. The owner is in the barn each day and has a herdsman who does what he is asked to do and does it well. Infections have been kept clean. The system of dipping teat ends after milking was instituted. They have used alcohol on cotton most of the time as a swab of the teat ends, instead of actually dipping the teats. Strip cups have always been used. Two milker units are operated per man. Individual towels are used for wiping down udders in a warm rocal (quarter-

nary ammonium) solution prior to milking each cow.

This herd has been free from *Str. agalactiae* and would have been on the last examination had it not been for the purchase of a mature cow which revealed *Str. agalactiae* in one quarter. This infected cow has been isolated from the herd in the horse barn. Freedom from clinical mastitis has been evidenced in this herd during the past year.

Many examples of this type of herd may be cited. Johnson reported on July 9, 1949, that an enthusiastic owner near Cazenovia informed him that it had cost him \$200 for treatment in his 38-cow herd which had been a serious problem herd with a high percentage of *Str. agalactiae* infection. The owner was proud of the results of this small expenditure, as the average butter fat production for the herd had increased from 360 to 400 lb. in 1948.

Another herd near MacDougall had regularly lost 5 or 6 cows per year on account of mastitis. The stalls were lengthened and the mastitis-control program followed. This owner remarked that his cows had never produced as well as they had since adequate treatment and supervision had started. The present annual average production was 12,600 lb. of milk and 480 lb. of fat on twice-a-day milking.

One of the first herds that we attempted to help in 1946 was a 55-cow Ayrshire herd which presented an average initial problem. The herd has had strict supervision from the local veterinarian and the owner has cooperated well. During the past year, the herd made a 570-lb. butter fat average.

We lack data of this type for most of our herds and comparative results of production are difficult to evaluate accurately. It is not unusual to have dairymen say that the cows went up on production immediately after a herd survey and herd-treatment program was completed.

SUMMARY

1) The history and objectives of the New York State Mastitis Program are briefly given.

2) Some phases of etiology are discussed with emphasis on environmental factors and management practices.

3) Diagnosis is based on physical ex-

aminations and culture on bovine blood agar.

4) Various treatments for acute and chronic mastitis and for infected quarters not showing mastitis are described and an attempt made to evaluate them on small groups of cows in various parts of the state. Penicillin in various vehicles is effective against everything except coliform bacilli and *Pseudomonas*. Penicil is favored as a vehicle for penicillin or streptomycin, or both may be placed in penicil at the same time, where the type of infection is unknown. Where one infusion must be used, this may prove more effective than to rely on penicillin alone in penicil or in ointment in tubes.

5) Ointment tubes as a method of infusing penicillin, streptomycin, or aureomycin offer promise and should be investigated further. They avoid all chance for contamination, and reduce the danger of transmission of infection.

6) Unsupervised treatment by laymen has apparently favored the development of acute and chronic mastitis due to *Pseudomonas aeruginosa* and this infection has been disseminated through herds by use of infected saline or syringes. *Pseudomonas* infection results in a form of mastitis that is difficult or impossible to cure, even by allowing the udder to have a long period of rest from lactation.

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New Virus Disease of Long Island Ducks

Levine and Fabricant, of the New York State Veterinary College, have told of recent crippling losses caused by an unnamed virus disease in Long Island ducklings (*Cornell Vet.*, Jan., 1950). The epizootic started in the spring of 1948 and by autumn practically every one of Long Island's 75 duck growers had reported heavy losses. Mortality of 85 to 90 per cent in hatches of 2,000 or more was common.

Death followed initial symptoms within an hour. The ducklings first looked sluggish and sleepy, then fell on their sides, kicked spasmodically, and died with the head drawn back. Autopsy showed enlarged livers with hemorrhagic areas and swollen, injected kidneys. Attempts at vaccination were unsuccessful, but treatment with antiserum sharply reduced the loss rate.

Although the virus of avian pneumoen-

cephalitis (Newcastle disease) was isolated from two birds on one of the affected farms, it seemed doubtful that this disease had anything to do with the epizootic; moreover, the incriminated virus was distinguished from the pneumoencephalitis virus by its failure to agglutinate red cells. It also seemed unlikely that the duck virus was of the psittacoid group, in view of its resistance to streptomycin and penicillin.

The disease apparently has not been described before in North America. Further study is planned.

Penicillin Therapy in Enterotoxemia.

Two out of 3 sheep stricken with enterotoxemia of the fatal type responded to 200,000-unit doses of penicillin. The first dose was followed by similar doses morning and night through the third day. Recovery in 2 cases was complete in four days; the other, a comatose case, did not respond. The authors point out (*Bull. Acad. vét. France*, April, 1950) that in fifteen years of observation, no case of infectious enterotoxemia showing nervous involvement has recovered in their hands and, therefore, concluded that the credit belongs to the bacteriostatic action of the drug.

[This report would suggest ability on the part of penicillin to neutralize the toxin of *Clostridium botulinum*, as well as to inhibit its growth.—Ed.]

Leptospirosis.—Whenever a syndrome in dogs includes bloody stools or urine, *Leptospira canicola* infection should be considered as one of the probable causes. Concurrent asthenia, decubitus, vomiting, polyuria, and symptoms of septicemia (leading to coma in fatal cases), and the presence of leucocytes, round cells, and epithelial cells in the urine tend to confirm the clinical diagnosis. If the dog has access to water probably contaminated by rats, this adds to the diagnostic evidence. Keeping this sketchy synopsis in mind may cultivate familiarity with a canine infection not well known.

The practicing veterinarian cannot avoid making a mistake now and then, but he can avoid making the same mistake twice; he can avoid being discourteous to his clients; and he can render service at all times.—W. M. Coffee, D.V.M., Kentucky.

Studies on Sanitizing Used Feed Bags

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SHORTAGE of burlap during and after the last war has made it necessary to use feed bags repeatedly. In this connection, feed manufacturers, farmers, and livestock sanitarians have been concerned over the possibility that re-used feed bags may become a means of disease transmission. While such may be the case, direct evidence is lacking. In the face of major animal disease problems, recommendations have been made "to discontinue the re-use of feed bags, unless properly sterilized,"^{1,2} without regard to the technical and economic questions involved. To realize the magnitude of the problem, it should be considered that a large feed company may handle up to 50,000 bags per day. In certain states, laws and regulations have been promulgated to permit only the use of new or sterilized bags, irrespective of the fact that no practical means are available at present to render feed bags sterile, i.e., free from microorganisms or spores, in the bacteriologic sense.

VIABILITY OF ORGANISMS ON FEED BAGS

The potentialities of feed bags as disease transmitters were studied in this laboratory. In the work of Wooding¹³ and Jungherr,⁵ small samples of burlap, either fine shreds or whole 0.5-cm. square strips were sterilized in glass tubes, charged with various bovine and avian pathogens, stored at out-door, refrigerator, and room tem-

peratures, and re-cultured after varying intervals. Duplicate tests were conducted with nonsterile burlap samples in order to simulate farm conditions. From the voluminous data obtained with Newcastle disease (ND), infectious bronchitis, and fowlpox viruses, and *Salmonella pullorum*, *Micrococcus pyogenes*, *Streptococcus agalactiae*, *Brucella abortus*, *Pseudomonas aeruginosa*, and *Aerobacter aerogenes* bacteria, respectively, interesting examples can be cited: Viability, but not necessarily the maximum, was demonstrated for infectious bronchitis after twenty-two days of storage at refrigerator temperatures, after two days at room temperatures; for Newcastle disease virus (NDV) under similar conditions after fifty-six and sixty-three days; for *Str. agalactiae* after twelve and seven days; for *Br. abortus* after thirty-three and thirty-seven days; for *S. pullorum* after thirty-six and 203 days, respectively. In similar work by Jungherr *et al.*,⁶ samples of materials commonly found on chicken farms such as cotton bags, egg shells, egg flats, feathers, crate wood, leather, and shavings, were prepared as above and shown to maintain NDV, with a single exception, for twenty-eight to ninety-seven days. In repeating these experiments⁷ with sterile burlap strips treated with NDV and held at 4, 22, and 36 C., the viability extended to ninety-three, seventy-two, and fifty-eight days, respectively. While at the low storage temperatures it was possible to recover the virus in the majority of cases, this was possible in only one half of the trials at 36 C.

SANITIZING METHODS TESTED

In general, the method of study consisted of impregnating sterilized strips of burlap with cultures of certain organisms and packing the strips in bacteria-proof containers, for exposure to the respective sanitizing procedures. On return, the samples were examined for viability of the organisms by standard laboratory techniques. For controls, untreated inoculated

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These studies were undertaken at the suggestion of Mr. Oscar I. Struve, former chief chemist, and his successor, Mr. Ward Flach, Eastern States Milling Company, Buffalo, N. Y., and would not have been possible without the full cooperation of the managements of the Eastern States Farmers' Exchange, West Springfield, Mass., and the General Electric Company, Schenectady, N. Y. It is also a pleasure to extend credit and thanks to the principal coworkers on this project in the laboratory, Dr. Rebecca Gifford, and Messrs. Karl Seeger, Norman Dondero, and Melvin Lieberman.

Supported in part by funds provided by Bureau of Animal Industry, U.S.D.A., Public Laws 733 (9b3), and a research grant from the Eastern States Farmers' Exchange.

strips were tested, one half of them being held in the laboratory at room temperature, the other half being subjected to shipment but not to exposure.

Cyanide Fumigation.—In this process, as applied at one large feed mill, used burlap bags in bales of 500, about 100 bales per car load, are returned from the bag-cleaning houses to the mill. Fumigation chambers, constructed of reinforced concrete and equipped with double-sealing, refrigerator-type doors and externally operated suction fans, are loaded with the bales and steam-heated to 90 to 95 F. For each 1,250 cu. ft. of space, one 12½-lb. briquette* is placed in an earthenware crock and covered with equal parts of Baumé hydrochloric acid (20 degrees) and water. The gas, generated under considerable pressure and estimated to consist of 75 per cent cyanogen chloride and 25 per cent cyanide, is allowed to act for forty-eight hours.

McAlpine and Slanetz,⁹ Skinner and Sherman,¹⁰ and Houghton⁴ carried out tests on the bactericidal value of cyanide gas, generated from briquettes. Strips of cheesecloth, burlap, and filter paper, dropped into 48-hour cultures of various bacteria, and dried, were exposed to this gas for sixteen hours and re-cultured. Of the organisms tested, *Br. abortus*, *Brucella suis*, *Str. agalactiae*, and *Mycobacterium tuberculosis* (bovine and avian type) failed to survive. *Salmonella pullorum*, *Salmonella gallinarum*, and *Pasteurella multocida* could be recovered regularly from at least one of the three infected and fumigated materials. All nonfumigated controls grew luxuriantly. In a follow-up test with infected cheesecloth and filter paper placed into bales of 250, 500, and 1,000 bags, respectively, there was a progressive decrease in the bactericidal action with increasing numbers of bags, indicating decreasing penetration. In the 250-bag bale, however, only *M. pyogenes* var. *aureus* survived, while the other organisms were apparently killed by the process. Tyzzer¹⁴ found cyanide fumigation to have a distinctly injurious effect on chicken and turkey coccidia.

Experimental Results.—In preliminary tests, sterile burlap strips were soaked in broth cultures of *M. pyogenes* var. *aureus* and *S. pullorum*, packed in cotton-lined, per-

forated steel containers and exposed to cyanide fumigation in the above described chamber. When re-cultured twelve days later, none of the treated strips nor the *S. pullorum* controls yielded specific organisms, but there was evidence of heavy extraneous contamination. In a follow-up study, comparable test samples were fumigated both in the periphery and in the center of burlap bag bales. Fourteen days later, *S. pullorum* could not be recovered except from the controls; all *M. pyogenes* tests were negative, but contamination was still pronounced. A third test included *Eimeria tenella*, the cause of cecal coccidiosis, for which viability was demonstrated by test feeding of known susceptible chickens. The results were clear-cut in that all control strips showed survival of the test organisms, uncomplicated by extraneous contaminations. *Micrococcus pyogenes* and *E. tenella* survived fumigation, both in the periphery and the center of the bale, while *S. pullorum* was killed in either position. In a fourth experiment, using *S. pullorum* alone and treating test samples in the periphery and the center of loose and tight bales for twenty-four and forty-eight hours, respectively, survival was again demonstrated for those test organisms which had been fumigated in the center of tight bales, irrespective of the length of exposure.

Ultraviolet Light.—Since the effectiveness of the cyanide fumigation process against organisms, such as *S. pullorum*, of relative low tenacity appeared to be influenced by the physical condition of the bale, ultraviolet light was suggested as a possible means of sanitizing burlap bags.

Experimental Results.—Sterile burlap strips, 1 in. by 2 in., were soaked in a broth culture of *S. pullorum* and, while still moist, were shipped to the mill in large cotton-stoppered test tubes. On arrival, the strips were removed from the tubes with sterile forceps and placed under a 36-in. ultraviolet light lamp, specifically built for room air sterilization. Exposure was made at a distance of 12 in. for two, two-and-a-half-minute periods on each side, or a total of ten minutes. The organisms could be readily recovered in spite of heavy secondary contamination. In repeating this experiment, moist and dried strips were exposed in a similar manner, with the same results. In a third trial, the strips were turned every two and a half minutes for a

*Manufactured by Safety Fumigant Company, 158 State Street, Boston, Mass.

total exposure time of twenty minutes, without demonstrable bactericidal effect on *S. pullorum*. Extraneous contamination was practically eliminated by preventing air currents and turning on the light source for some time prior to the experimental treatment.

Mercury Compound Impregnation.—Trials were conducted with certain organic mercurial compounds which, applied in solution, would leave active residual mercury in the dried burlap to the extent of approximately 0.02 per cent. Burlap samples so treated appeared like other samples to the unaided eye and were tested for bacteriostatic, bactericidal, and virucidal activity.

Literature.—A proprietary organic compound† was said¹ to exhibit germicidal activity about 15 times that of phenol, under a variety of conditions. Thus, treated toothbrush bristles, after having been washed up to 700 times, still produced an inhibition zone of 3 mm. on agar medium streaked with *M. pyogenes* var. *aureus*. Preliminary tests on burlap impregnated with this compound, using carbon tetrachloride for a solvent, showed a bacteriostatic inhibition zone of 8 to 0.5 mm. in dilutions of 1:100 to 1:800, respectively.¹¹

Morton *et al.*⁹ studied the bactericidal action of some proprietary mercurial compounds, such as mercurochrome, merthiolate, and metaphen, against *Streptococcus pyogenes* by exposing young blood broth cultures to ten times the amount of disinfectant for periods of from five to fifteen minutes. Aliquot portions of the treated culture inoculated into blood broth failed to grow. If, however, the mercurials were inactivated by thioglycollate, subcultures resumed growth. Portions of these subcultures inoculated into mice still caused fatal infection. The authors demonstrated, thereby, bacteriostatic but not bactericidal power of the test compounds. By contrast, phenol-treated control cultures in dilutions of 1 : 80 to 1 : 100 were not harmful to mice, presumably on account of the bactericidal action of the disinfectant.

Experimental Results.—In preliminary tests, burlap strips impregnated with carbon tetrachloride-dissolved proprietary compound in concentrations of 1 : 100, 200, 400, and 1,000, were covered with extract agar in Petri dishes and, after hardening,

streaked with *M. pyogenes* var. *aureus*. This particular strain had been used widely in penicillin assays. The lowest dilution plates showed inhibition zones of from 15 to 5 mm. In a second experiment with ethylenedichloride as the solvent, the above results could be readily duplicated. In further trials, samples of both new and re-used burlap bags, treated either with the mercuric compound (1%) alone, or also with a water-shedding substance‡ (6%) were tested as above. All of the treated samples produced definite zones of inhibition. One sample which came from a treated, five times re-used bag still exerted definite bacteriostatic power. In general, the zone of inhibition was somewhat smaller for the mercuric plus the water-shedding compound than for the mercuric compound-treated bags, and for used than for new bags, but the differences were not significant.

Other mercurials were compared with the proprietary compound, namely, dihydrodichlorophenyl methane, and pyridylmercuric chloride, -acetate, and -stearate, respectively. All of these substances showed definite bacteriostatic power similar or greater in magnitude than that of the proprietary compound.

The bactericidal activity of the proprietary compound was tested by subculturing from the center of inhibition zones into nutrient broth and thioglycollate broth. Particularly with the former medium, it was usually possible to recover the test organism *M. pyogenes*. In another experiment,⁷ NDV was stored on such impregnated burlap strips at 4, 22, and 36 C., parallel with untreated strips, and re-isolated after periods of ninety-three, seventy-two, and fifty-eight days, respectively.

Thus, in spite of the definite and sustained bacteriostatic power of mercurial-impregnated burlap, no evidence was obtained of any appreciable bactericidal or virucidal action.

Dielectric Heat.—As outlined in a preliminary announcement by Flach,³ the principle of radar cookery and diathermic physiotherapy has been applied recently to the problem of used bag sanitization. Such dielectric heat resulting from the resistance

†Perm-Aseptic, manufactured by Rampel Chemical Co., Mount Vernon, N. Y.

‡Rampellant, manufactured by Rampel Chemical Co., Mount Vernon, N. Y.

encountered by rapidly reversing electric currents (up to 14.10^6 cycles/second) has the advantage of almost instantaneous and uniform penetration of exposed materials, and of not being injurious to burlap bags if held below 280 F.

At first, test strips were placed between layers of sterile cotton in wax paper sandwich or freezer bags, with the paper cover removed for exposure to heat. Later on it was found advantageous, from the standpoint of excluding contaminating organisms, to place the strips into the center of sterile packing material consisting of cheesecloth, cotton, and wax paper. The test strips were exposed in the unopened packing material by placing them in the middle of a 34-bag experimental bale. On return, the strips were re-cultured for the test organism by standard techniques.

Experimental Results.—After a preliminary test for the purpose of orientation, 17 strips inoculated with *S. pullorum* were exposed to temperatures ranging from 95 to 185 F. for periods of one-fourth to four minutes. Another seven strips were exposed to 205 to 270 F. for five to seven minutes. The organism was readily recovered from the first group exposed up to four minutes, and from two groups of seven control strips each, but not from the second group subjected to the longer treatment. Parallel exposure of test strips with and without wax paper covers failed to influence the results. There was no trouble from extraneous contamination. Incidentally, this was the first test in the various sanitizing experiments showing a clear-cut dosage response differential.

In repeating the above experiment, ten strips each, charged with *S. pullorum* and exposed at 160 to 162 F. for three minutes, and at 197 to 205 F. for seven minutes, manifested growth only in the first group and in the ten laboratory-stored and ten shipped controls.

In further tests, ten strips each, inoculated with *S. pullorum*, *M. pyogenes* var. *aureus*, *Bacillus* sp. (Lederle 83,220), *Br. abortus*, and NDV, respectively, were exposed at 200 to 215 F. for five minutes. *Salmonella pullorum* was not isolated from any of the treated strips, *M. pyogenes* was recovered from one of ten strips, and *Bacillus* sp. from all of the ten strips. Although *Br. abortus* and NDV were likewise not recovered, the corresponding controls

failed to exhibit viability, thereby leaving this part of the test inconclusive. Since the last two test organisms are known to be of lower heat resistance than *S. pullorum*, it is likely that they would succumb to the sanitizing treatment in further tests.

In a final test, five groups of ten strips each inoculated with *Bacillus* sp. were exposed at 200 to 280 F. for five to nine minutes, respectively. All of the cultural tests yielded growth of the organism, thereby indicating the inability of dielectric heat to destroy spores of aerobic bacilli.

SUMMARY

The practice of using secondhand burlap bags in the merchandising of animal feeds is dictated by economic factors and is widespread at the present time. There is general concern over the possibility that secondhand feed bags contribute to the mechanical dissemination of contagious and infectious diseases of animals and perhaps of man. On the other hand, there are no practical means available at the present time to sterilize burlap bags, i.e., to free them from microorganisms or spores, in the bacteriologic sense, notwithstanding recommendations and laws to this effect. The available means for sanitizing feed bags do not even dependably render them free from nonsporeforming, disease-producing organisms.

The actual role of re-used feed bags in the spread of disease is not known. In laboratory experiments, small samples of burlap and other common waste products of farm operations, such as feathers, shavings, pathogenic organisms like *Salmonella pullorum* and Newcastle disease virus, have shown an extraordinary, unlooked-for ability to survive under a variety of storage conditions, ranging from out-of-doors to incubator temperatures. In considering the potential danger of feed bags as disease transmitters, it must be recognized that different pathogenic organisms vary widely in their tenacity or innate ability to maintain themselves outside the susceptible animal body and that such ability is conditioned by environmental factors of temperature, moisture, and natural antibiosis. As contrasting examples of low and high tenacity, respectively, at room temperature may be cited infectious bronchitis in comparison with Newcastle disease in the viral

group, *Streptococcus agalactiae* and *S. pullorum*, in the bacterial group.

Experiments have been conducted during the past eight years on sanitizing burlap samples by means which seemed industrially feasible. In general, sterile burlap samples were inoculated with bacterial, viral and, in one case, protozoal, test organisms, shipped to the cooperating plants for sanitizing treatment, and re-cultured by appropriate means on their return. These viability tests were compared with those of untreated controls, both of which were kept in the laboratory and subject to shipping.

Cyanide fumigation failed to kill *S. pullorum* consistently, especially in the center of tight bales, and *Eimeria tenella*. Ultraviolet light, at a distance of 12 in. for periods up to ten minutes per side, failed to show any killing power against *S. pullorum*. Burlap samples impregnated with a proprietary organic mercurial, with or without the addition of a water-shedding substance, and other mercurial compounds showed excellent bacteria-inhibiting activity, even after quintuplicate use of the bags, but appeared to be devoid of actual killing power for the test organisms. Newcastle disease virus survived on mercurial-treated burlap samples for over fifty days. Dielectric heat at 200 to 215 F., applied for at least five minutes, killed *S. pullorum* in all trials and *Micrococcus pyogenes* var. *aureus* in most instances, but even temperatures up to 280 F. for nine minutes failed to kill a sporeforming aerobic bacillus.

Since viruses are known to be of considerably lower tenacity than bacterial organisms, it may be assumed that dielectric heat is capable of effectively killing all microbiologic agents of potential disease-making power except sporeforming organisms. Whether this latter deficiency can be remedied by prolonging the period of heat treatment must await further study. While the hazard of the presence of animal pathogenic spores in feed bags is real, the likelihood of their presence is very low, particularly in the Northeast. On the other hand, dielectric heat treatment offers a means for sanitizing secondhand burlap bags comparable in importance and effectiveness to the pasteurization of milk, in safeguarding human and animal health.

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Treatment of Bovine Trichomoniasis

Therapy for trichomonad infected bulls, based on the sensitivity of the trichomonad toward oxygen, was suggested by Dr. Emil Hess, of Zurich, Switzerland, at the U. S. Livestock Sanitary Association meeting last year in Columbus, Ohio. Hydrogen-peroxide at the dilution of 1:10,000 is injected into the sheath with special equipment designed for this purpose and described in his paper. (See also the JOURNAL, April, 1950:291).

Mastitis Prevention

Roomy stalls are a big factor in ridding a herd of mastitis because the large stalls reduce the amount of injury to the teats and udders. Mastitis prevention is a 50-50 arrangement between management and treatment.—J. E. Lillesand, D.V.M., Wisconsin.

Hemolytic Icterus of the Newborn Mule

Freixa, Millot, and Saint Martin (*Rec. Méd. vét.*, April, 1950) describe a successful intervention for the hemolytic catatrophe that fatally strikes down newborn mules. Their operation consists of a combined exsanguination and transfusion. The former removes death-dealing detritus and the latter provides healthy erythrocytes for the hindered hematosis. The two operations are done simultaneously; that is, the abstraction and transfusion are done alternately with the same apparatus. The operation is done slowly: an hour or more.

The donors were adult mules. The amount of blood removed was 5,000 cc., and the amount transfused, slightly less. Mild cases responded to transfusion without exsanguination, but the double procedure was the one of choice. Results: spectacular and immediate, if performed early; worthless if treatment is delayed. The technique is described in minute detail. Whether American mule breeders are troubled with this tragic ailment is a question this writer is not able to answer. On this point, Dr. Glen L. Dunlap of the Ashe Lockhart Laboratory, Kansas City, Mo., writes:

Our knowledge of this disease is practically nonexistent (in this country) at the present time. I have never heard anyone speak of the hemorrhagic icterus in mules that has recently turned up in Thoroughbred foals. I have talked with veterinarians who have practiced in Missouri for a good many years and they are not aware of it. Certainly, were it a prominent disease, these Missouri veterinarians would have recognized it.

Inasmuch as hemolytic icterus in newborn foals, observed in Lexington, Ky., by Dimock and Bruner (1947), Bruner, Edwards, Hull, and Doll (1948), and Bruner, Doll, Hull, and Kincaid (1950), and in California by J. W. Britton (1950), coincides with that of mules in France in all important respects, including the blood pathology involved, the exsanguination-transfusion therapy briefly described above seems to be worth further consideration.

Burlap bags, securely tied on the feet of cows down with milk fever or acetone-mia, serve to prevent slipping and make it easier and safer for the cow to get back on her feet.—F. H. Fox, D.V.M., New York.

Water for Dairy Cows

When drinking cups were compared with morning and evening watering of dairy cows, it was found that in the presence of the drinking cups the cows consumed 20 per cent more water; they drank one-third of this total water at night; they produced 3.5 per cent more milk and 10.7 per cent more butterfat than the cows that were watered morning and evening.

Antirabic Vaccinal Paralysis

A certain percentage of dogs (and persons) vaccinated against rabies suffer from a paralysis lasting from ten to twenty days. Many attacks are fatal. In the absence of a fact-finding program in this country, the frequency of the accident is not known, at least not as well as in certain foreign countries. The paralytic state, which ensues any time between the tenth day to the forty-fifth week following the vaccination, is preceded by excitation, ataxia, and convulsions that may be mild or aggressive. Stryszak (*Medycyna Weterynaryjna*, 5, 1949:668, Poland) reproduced the paralysis in guinea pigs and mice with the intracerebral, intramuscular, and subcutaneous injection of brain substance of dogs dead from vaccinal paralysis, and thus established the toxi-infectious nature of the trouble. Negri bodies were not found in the experimentally inoculated laboratory animals. In 4 cases out of 10, the paralysis was passed back to dogs with the brain substance of these guinea pigs and mice. The theory that postvaccinal antirabic paralysis is due to the virulence of the virus used must be abandoned in the light of this research, since a paralysis-producing ingredient capable of reproducing itself independently of the virus appears to be the cause of these vaccinal accidents.

Eperythrozoonosis in Swine.—A blood parasite causing an anaplasmosis-like disease in midwestern swine, reported in the May, 1950, JOURNAL by Splitter and Williamson, has now been identified as a new *Eperythrozoon* species and named *Eperythrozoon suis* (Splitter, *Science*, May 12, 1950). Another species, observed only under experimental conditions, has been designated as *Eperythrozoon parvum*. Neosarsphenamine is a specific treatment.

Brucellosis Eradication

Following are excerpts from President T. O. Brandenburg's address at the Fifty-Third Annual Meeting of the U. S. Livestock Sanitary Association in Columbus, Ohio, Oct. 12-14, 1949.

The Bureau of Animal Industry is, so far as I have been able to ascertain, the only Federal department cooperating with the various states that does not allocate money to the various state departments. The BAI cooperates only by furnishing paid veterinary services to serve under the laws and regulations of the states, but under the direction of a chief inspector employed by the Bureau.

The present system is to blame for most of the discord found in so many states between the Bureau and the state departments. . . . This double headed system and the wastage which it causes should be changed, and so on. The BAI should continue to cooperate with the various states in the major transmissible disease programs by a system of matching funds. All monies for livestock sanitary work, including state and federal, [ought] to be spent by the state and under its supervision

All states should have livestock sanitary work supervised entirely by the state or entirely by the Bureau, but not by both

The interstate movement of livestock should be the exclusive responsibility of the BAI.

It is our belief that we must look forward and not backward, and that the veterinarian of the future with his long period of training and preparation will not care to spend his entire life as a technician. Six years of veterinary training, should fit men for greater tasks In any case, since it has now been thoroughly demonstrated that laymen can perform these duties adequately, we are faced with this question: Is the control of brucellosis or any other disease done for the benefit of the veterinary profession or for the livestock industry and for the general welfare of all people?

Veterinarians are specially trained professional people, and disease control among animals is dependent upon their knowledge and service. Their future attainments will depend a great deal on how well they can develop the more difficult phases of their profession and how well they delegate the routine tasks to others.

Survival of Mastitis Streptococci in Barn Materials

It is well known that any object in a barn is a potential hide-out for bovine mastitis organisms, but the length of time these organisms may survive on various materials is not so well known. Experiments with *Streptococcus agalactiae* in Britian (A. Chodkowski, *J. Comp. Path. and*

Therap., Oct., 1949) revealed that the organism may live on objects in the barn for as long as twenty days, and for as long as twenty-six days on a cow's skin.

Survival time was observed after manure, hair, wood, brick, cloth, and other materials commonly found or used around barns were soaked with infected milk. For example, *Str. agalactiae* survived on hay for twenty days; on straw, thirteen days; on a bucket, eight days; on a broom handle, five; on the floor, four; and on rubber boots, four days. Previously sterilized materials supported bacterial life longer—up to two months in some cases.

Listeriosis and Coenurosis.—Because grossly similar in their clinical aspects, *Listeria monocytogenes* infections of the small ruminants (listeriosis) and larval *Multiceps multiceps* infections of the brain of these animals (coenurosis or "turn sickness") require a critical differential diagnosis in the laboratory.—From *Nordisk Veterinaermedicin*, 2, 1950.

Mink

The breeding of mink on a large scale is a new enterprise. What was but a backyard hobby in the 1930's is now a vast adolescent industry, with a large capital investment and the disease problems attached to the raising of animals *en masse*. The latter came upon the industry faster than scientific research could liquidate them. In the case of distemper, for example, an article by Close*, in 1936, entitled "Mink Too Have Distemper" reveals the *status quo* of mink pathology as of that date.

Thanks to the commercial laboratories, an antiserum (now improved) came into use in 1940, when the well-meaning mink ranchers were still telling hesitant buyers of breeding stock that mink were more disease-proof than the vulnerable fox, a presumption that time has not confirmed. The fragmentary articles on mink pathology and hygiene published in industrial and veterinary journals show clearly that the popularity of the mink coat brought something new for scientific research to reckon with.

*Cited by Geo. L. Ott, Ph.D., in the *National Fur & Market Journal*, Oct., 1949.

NUTRITION

The Anti-Anemia Factors

Although pernicious anemia has been recognized for more than one hundred years and the role of diet in its treatment and cure has been known for twenty years, there still is much recent information which needs to be clarified in connection with this condition.

The synthesis of folic acid in 1945 marked a big step forward and the discovery of vitamin B₁₂ in 1948 added information, but in some ways it required clarification of previously accepted fact. Now the identification of a new factor called vitamin B₁₄ requires that the entire situation be considered and clarified.

Folic acid is a name applied to a chemical which is also known by other names such as pteroylglutamic acid, the lactobacillus casei factor, folacin, etc. Chemically, folic acid is a basic pteridine nucleus linked with p-aminobenzoic acid and a molecule of glutamic acid. Xanthopterin is another of the anti-anemia factors and its balance indicates that folic acid must first be degraded to this compound before it can be used by cells.

When normal rats were fed 1 to 5 mg./kg. of xanthopterin, polycythemia (excess of red blood cells) and leucocytosis (excess of white cells) occurred. However, when doses greater than 5 mg./kg. were administered, they produced the opposite effect, namely, anemia and leucopenia in normal rats. The precise metabolic inter-relationships between folic acid and xanthopterin still remain unsettled.

Thymine may replace large amounts of folic acid in the basic biologic processes of microorganisms. A study of the manner in which thymine and folic acid act to stimulate blood-cell formation suggests that this is through the synthesis of nucleic acid.

Thymidine of thymine deoxyriboside was isolated from liver as a crystalline factor, and proves to be several times as active as folic acid in stimulating the growth of test microorganisms.

Vitamin B₁₂ plays a role in the synthesis of thymidine and in that way probably produces its effect as an anti-anemia factor. One complication in this respect is that, although folic acid may be replaced by either thymine or thymidine, the vitamin B₁₂ is replaceable only by the latter.

Folic acid is brought into direct interplay with vitamin B₁₂ in anemia, probably through the key compound, thymidine, which is needed for the manufacture of nucleic acids for new cells, such as the new red blood cells, reticulocytes, etc. Folic acid facilitates the production of increased amounts of thymine. This in turn results in an increased production of thymidine. The latter step is probably assisted by the catalytic action of vitamin B₁₂. In general, it seems that the primary biochemical defect in pernicious anemia may well be the inability to synthesize nucleosides, particularly thymidine, from parent purines and pyrimidines.

Vitamin B₁₄ was reported in January, 1949, as a new hematopoietic substance. While the discovery of its presence and activity does not solve the complex picture, it does serve to tie several loose ends together, notably, the interrelationships among folic acid, xanthopterin, and other factors. Among the latter may be the so-called "intrinsic" and "extrinsic" factors in pernicious anemia.

The intrinsic factor is a substance in normal gastric juice, while the extrinsic factor is the substance provided by certain foods. The extrinsic factor of foods cannot be used by patients suffering from a deficiency of gastric juice, and hence these people develop anemia. It has been suggested that the extrinsic factor may be identical with the anti-pernicious anemia principle of liver which is presumably identical with vitamin B₁₂. If this be so, the intrinsic factor seems to act chiefly by increasing the absorption of vitamin B₁₂.

Vitamin B₁₄ is extremely active in stimulating the proliferation of new cells in bone marrow cultures. The extrinsic factor may be one of a related group of compounds consisting of xanthopterin, folic acid, pteropterin or other pteroyl derivatives, while the intrinsic factor may be one of several enzymes such as xanthine oxidase from milk or similar enzymes in liver and stomach tissue. Interaction of the extrinsic and intrinsic factors forms an active anti-anemia substance which may be vitamin B₁₄, or a closely related compound.—*Borden's Review of Nutrition Research*, 10, (Nov., 1949).

Quality Factors in Hay

Under most normal feeding conditions, good hay insures against nutritive deficiencies in the feeding of farm animals. Nearly all the essentials required by farm livestock can be supplied with an abundance of high quality forage. This is not always true of animals that are working hard or are producing heavily. Good pasture from fertile fields should supplement hay and silage through the feeding months of winter.

PIGS AND CHICKENS

Exceptions to the above statement are swine and poultry. These classes of animals can not eat enough rough forage to make suitable gains nor to produce eggs profitably, although both swine and poultry should consume a good quality of legume hay as a part of their ration in order to supply certain vitamins and minerals.

CATTLE

Dairy cows ordinarily secure about 60 to 70 percent of their nutritive needs from roughages that are grown on the farm. In beef cattle and sheep, this may run as high as 90 per cent. A good quality of hay is especially important in the growth and development of young dairy animals.

Despite their excellence as indicated, roughages do lack some things which are supplied by grains or cereal by-products. Among these is an item known as a lactation factor or factors. This is particularly rich in early cut hay as compared with hay that is cut later.

JUDGING HAY

Hay is judged by its leafiness, greenness, fineness of stem, and freedom from foreign material. All of these factors contribute to make it soft, pliable, and palatable. Leaves should make up about one half of the weight of alfalfa and, in that event, they contain about 70 per cent of the protein and 90 per cent of the carotene supplied by such hay.

Hay properly and rapidly cured is more likely to be high in carotene. Hay that is artificially dried or dehydrated loses carotene much more slowly than does field-cured hay. Carotene is continuously lost during storage. Although barn-dried hay is usually higher in vitamin A than is field-cured

hay at the time it is put into the barn, the rate of disappearance varies to such a degree that the two are almost equal in vitamin A and in carotene content at feeding time. A good quality of field-cured legume hay will provide adequate amounts of vitamin D for dairy cattle, beef cattle, sheep, and horses. Some trials have indicated that there is little difference in the amount of vitamin D present in sun-cured and in barn-cured hay. Wilted alfalfa silage also provides about the same amount of vitamin D as does hay. A good quality of legume hay is an especially good source of calcium, and a reasonable amount will provide adequate amounts of calcium for all farm animals except dairy cows. Hay crops vary widely in their content of phosphorus and, to complicate the situation, the response to fertilization is not uniform.—K. L. Turk, Ph.D., Cornell University, Cornell Conference, Nov., 1949.

Creep-Feeding Pigs

Pigs that are creep-fed gain significantly more rapidly than no-creep pigs, if the sows are fed ear corn by hand, according to the *Journal of Animal Science* (May, 1950: 167-162). This advantage is less marked if the sows are self-fed an adequate ration. Palatability of the creep ration is important.

Creep-feeding was never detrimental and is recommended under most conditions, but particularly when (a) sows are hand fed in groups; (b) large number of sows and litters run together; (c) sows are fed limited rations which would prevent the pigs from having access to adequate supply of supplementary feeds; and (d) sows are self-fed balanced rations and most uniform, rapid, and economical performance of the pigs is desired.

Manganese for Pigs

Pigs confined on concrete benefited from supplemental amounts of manganese when the total amount in the ration was as low as 12 p.p.m., but there was no stimulating effect when this reached 55 p.p.m.—J. Anim. Sci., May, 1950: 170-175.

Protein poisoning, as such, probably occurs seldom, if ever, in pigs.—C. C. Morrill, D.V.M., Illinois.

EDITORIAL

The Veterinarian's Responsibility in Civil Defense

CIVIL DEFENSE has come to signify the protection of the public against enemy action and military disaster. In a broad interpretation, this is correct, but in the narrow sense of trusting that the military branches of the government are responsible for this protection, it is a misconception.

Civil defense is primarily a civilian responsibility, because each civilian member of society is best protected when defending his own person and property. This holds true of veterinarians as well as other professional and business persons. It holds true for rural areas as well as for urban and metropolitan sections.

A civil defense program is being formulated at the national and state levels. At the national level, the Health Resources Office of the National Security Resources Board is charged with the duty of presenting an integrated program. Drs. A. R. Miller and Asa Winter are serving in an advisory capacity for veterinary medicine to this group.

Additional planning is being done by the Council on National Emergency Medical Service of the American Medical Association. Representatives of the American Dental Association and the American Veterinary Medical Association have been invited to attend meetings of this Council and participate in the discussions. Dr. C. D. Van Houweling has represented the AVMA at these meetings.

The Council has been particularly active in sponsoring similar councils of the state medical societies, and in the states where progress is being made the health officer of the state has represented the profession in the medical aspects of civil defense planning.

In every state, veterinary medicine should be represented on the civil defense council, and action toward this objective should be initiated by the state veterinary medical association. The ground work has been done to assure inclusion of veterinary medicine on a national level. It is

the duty of each state association to carry this contact down to the state level. Veterinarians have an important place in civil defense, and veterinary medical associations must take an active part in the planning stages to protect their members and the communities in which they live.

The veterinarian is responsible for a part of the civil defense programs, because he is a highly trained member of the community. Certain phases of civil defense are in fields in which no other person or profession has had equal training. This training should be used to plan in such a way that emergency changes of program will be reduced to a minimum—or that the greatest range of contingencies will be provided for in advance.

The veterinarian's responsibility, during the preparation stage, is to train persons to perform services to which they are unaccustomed. Here, again, it is essential that each person recognize the importance of each task assigned and each detail stressed.

The veterinarian is responsible for a share of the direction of the program when actual need arises. In order to assume this responsibility, he will need to be thoroughly familiar with many phases of the community program.

In the metropolitan areas and large cities, civil defense may be restricted, so far as the veterinarian is concerned, to the care of animals injured and made homeless by bombs, fires, or other major catastrophes. Some authorities have estimated that, in the event of atomic warfare, the demand for attention to injured people will be so heavy that veterinarians will be needed in this work.

In the suburban and rural areas, the civil defense duties of the veterinarian will be much more complex. There will be less demand for care and treatment of injured human beings, but an increase in the number and variety of animals needing attention. Some of these animals will be

dairy cows, and it will be necessary to decide whether exposure has been of a nature and severity which will contaminate milk which may be produced after the exposure. Others will be animals intended as the source of meat for human food, and the veterinarian will be asked to determine their suitability.

Foods of animal origin may accumulate in rural regions because of interference with normal means of transportation, refrigeration, and distribution in the metropolitan centers. In such instances, the rural veterinarian is the logical person to assist in orderly marketing, slaughter, and delivery of such food products within the limits of available refrigeration and transportation.

In rural areas, also, food-producing animals may be subjected to pasture, hay, and other feeds which have been damaged by bombs, fires, or atomic radiation. Again, the veterinarian will be needed to rule on the safety of the meat and milk, if such forage is utilized.

And the diseases of animals must be fully considered. Whenever a breakdown occurs in normal procedure, animal diseases have a greater opportunity to spread. The possibility of biological warfare makes it imperative that the rural veterinarian recognize not only those diseases prevalent in the community, but such other animal diseases as lend themselves to subversive use by the enemy. Many of the diseases mentioned in connection with biological warfare have animal reservoirs.

The secret of success in civil defense depends on (1) becoming familiar with the possible source of disaster; (2) planning the steps which must be taken as conditions deviate from the normal; and (3) preparing for prompt and effective action in every emergency. In all of these fields, the veterinarian has been specially trained. Seeing the injured and diseased animals in his daily work, he analyzes the conditions under which the problems developed and formulates a plan which utilizes the full ability of every owner and the entire facilities of the premises involved. All of this is quickly coordinated into a plan of action, because the immediate need of the client is for guidance in avoiding extension of the trouble, averting a recurrence of the damaging condition, and correcting the existing problem by treatment.

The veterinarian's responsibility in civil defense is immense, but it can be discharged to the credit of the individual and of the profession by remaining aware of the problems which may occur, and by cooperating with other agencies having the same objective, whenever and wherever it is possible to do so. The veterinarian's training in this respect has been such that he will react automatically or instinctively, if the proper contacts have been established before the need for action arises.

Important Resolution on Dues

The American Medical Association, at its recent San Francisco session, entertained a resolution proposing to abolish the collection of its dues at county or state levels—the method long in vogue. In four "whereas's", the resolution sets forth the confusion, misunderstandings, and interference with the prompt collection of the dues levied under the new rulings on memberships and fellowships. Quoting:

Resolved, that the House of Delegates of the American Medical Association is hereby memorialized to instruct the administrative division of the American Medical Association to establish its own independent procedure for collecting the dues of the organization directly from the individual members.

The interest this action has for the AVMA is that the constituent associations have never been responsible for collection of membership dues for the parent organization. The reasons: to simplify procedures and to insure, as far as possible, effective collection at the national level.

"Proceedings Book" To Be Published

It has been the custom to publish the proceedings of the AVMA annual meetings in the October issue of the JOURNAL. However, in accordance with the action of the Executive Board, the complete proceedings of the Miami Beach session—the general sessions, sessions of the House of Representatives, the section meetings and scientific papers, and the committee reports—will be published in a "Proceedings Book," which will be ready for mailing to members about November 1. There will be no charge to members for this book.

The scientific papers and committee reports, published as a separate book, will be available to libraries and other institutions at a reasonable charge.

CURRENT LITERATURE

ABSTRACTS

Ictero-Anemia in Swine

The disease of swine described in the literature as ictero-anemia or anaplasmosis-like disease is the result of acute infection with *Eperythrozoon suis*.

The disease is a severe parasitic attack of the erythrocytes and the infected animal shows symptoms of fever, depression, and anorexia. There is severe and rapid blood destruction, lowered temperature, pale and icteric mucous membranes, marked weakness, and constipation and bile-stained feces at the onset of the acute anemia.—[E. J. Splitter: *Eperythrozoon Suis, the Etiologic Agent of Ictero-Anemia or an Anaplasmosis-like Disease in Swine*. *Am. J. Vet. Res.*, 11, (July, 1950): 324-330.]

Treatment of Trichomoniasis

Cultures of *Trichomonas foetus* were treated with seven nitrofurans in concentrations as low as 20.0 µg./1 ml. Under the test conditions described, the authors believe that the results are sufficiently promising to warrant further investigation.—[B. A. Cole: *Effects, in Vitro, of Seven Nitrofurans on the Survival of Trichomonas Foetus*. *Am. J. Vet. Res.*, 11, (July, 1950): 315-316.]

Prevention of Transfusion Reactions with Sodium Salicylate

In dogs and horses, a 10 per cent aqueous solution of sodium salicylate prevented the usual reaction to intravenous administration of heterologous serum, or blood from a donor of an incompatible group. The proportion of salicylate solution to serum varied from 1:5 to 1:10, depending upon the amount required to inactivate the hemagglutinins of the serum *in vitro*. It had no effect on the agglutinogens in the blood. Neither did it prevent fatal anaphylactic shock if the injection was repeated after six to seven days.

When dogs received 40 to 80 cc. of plain horse serum, they reacted in five to ten minutes with uneasiness, whining, rapid pulse and respiration, defecation, and urination. The urine showed albumen, casts and, in several cases, a positive hemoglobin reaction. When sodium salicylate was added to the serum before injection, there was no reaction.

Horses reacted to 600 cc. of untreated bovine serum. There was no reaction to 1 liter of salicylated serum.

Transfusions were made in horses known to belong to incompatible blood groups. One liter of donor's blood was drawn into a bottle containing 200 cc. of 4 per cent sodium citrate. To this was added 1 liter of the recipient's blood. The resulting agglutination was clearly visible. When 200 to 300 cc. of the mixture were injected intravenously, a typical reaction occurred (pulse 80 to 100, respiration 40, uneasiness, defecation). Sodium salicylate solution, 100 cc., was added to the remaining mixed blood and the transfusion continued. In every case, there was rapid improvement and the symptoms had disappeared by the end of the transfusion. When transfusions were made with salicylated blood only, there were no symptoms and no change in the urine. There was an increase in the percentage of hemoglobin and the number of erythrocytes.—[V. A. Herman, Kharkov Vet. Inst.: *Hemagglutination Inhibition and the Transfusion of Extragroup Blood and Heterologous Serum*. *Veterinariya*, 27, (Feb., 1950): 45-48.]—R.E.H.

Treatment of Bovine Brucellosis

When 4 cattle infected with brucellosis were treated repeatedly with sulfamethazine and transfusions of normal citrated bovine whole blood or normal serum, there was no apparent effect on the blood titer and the treatment did not prevent 3 cows from shedding *Brucella* in the milk.—[R. E. Watts, L. E. Boley, and W. Alastair Greig: *Sulfamethazine and Blood Transfusion in Experimental Treatment of Bovine Brucellosis*. *Am. J. Vet. Res.*, 11, (July, 1950): 304-307.]

Brucellosis Treatment with Chloromycetin

A description is given of the activity of chloromycetin on the growth of *Brucella*, *in vivo*, on its chemotherapeutic activity in experimental *Brucella* infection of the developing chicken embryo, and on its use in the treatment of human patients with brucellosis. The authors were able to inhibit the growth of *Brucella abortus* and *Brucella melitensis* completely by the use of about 1 gamma or more of chloromycetin per 1 cc. of culture medium, while *Brucella suis* required twice as much for the same effect.

Notable reduction in the growth of *Brucella* in the tissues of developing chicken embryos resulted from the use of 1,000 gammas of chloromycetin. Those treated survived several days longer than the infected controls.

Of 4 cases of human brucellosis treated with chloromycetin, 3 had no relapse during the next two to six months while they were under observation. These patients were treated for ten to twelve days, except the 1 that suffered the relapse five weeks later—which was treated for only five days. Initial dosage used consisted of 0.03 Gm. per kilogram of body weight. This was followed by 0.04 Gm./1 kg. every twenty-four hours, in divided doses at intervals of three to four hours. Recovery was noticed after seventy-two hours of treatment.

The authors report that the chemotherapeutic action of chloromycetin upon Brucella infections was very encouraging.—[Alberto P. Leon, Carmen Cano, and E. Bernad: *Chloromycetin in the Treatment of Brucellosis in Humans*, *Rev. d. Inst. de Salubr. y Enferm. Trop. (Mexico)*, 10, (June, 1949): 155-165.]—O. A. Lopez-Pacheco.

Cat Anesthesia with Chloral Hydrate

The author conducted a series of experiments using chloral hydrate as an anesthetic for cats in view of the good results obtained with that drug in horses, cows, pigs, and dogs.

The only reference he found to the use of chloral hydrate in cats was "The dosage of 15 gr. of chloral per kilogram of body weight, should be considered as toxic for the cat (Lesage)".

He conducted 68 experiments on 14 different subjects, using a 10 per cent solution injected intraperitoneally. The age and sex of the cats was varied.

The following conclusions are derived from the experiments.

Chloral hydrate acts as a mydriatic and emetic in cats. It is more toxic in older, than in younger, animals. The minimum semianesthetic dose is 5 gr., and the maximum is 15 gr., per kilogram of body weight, with a duration of five to fifteen minutes. The minimum anesthetic dose is 10 gr., and the maximum is 16 gr., per kilogram of body weight, with a duration of fourteen minutes to three hours. The minimum toxic dose is 8 gr., and the maximum is 17 gr., per kilogram of body weight.

The author does not advise the use of chloral hydrate as an anesthetic in daily practice, since the margin of safety between anesthetic dose and the toxic dose is too narrow. A low environmental temperature exerted an unfavorable action on the anesthetized animals in this experiment.—[Luciano F. Laurino: *Chloral Hydrate as Anesthesia for Cats*, *Rev. Med. Vet. (Argentina)*, 30, (April-June, 1948): 27-41.]—O. A. Lopez-Pacheco.

Enzootic Mycosis in Mink

Nine mink on one farm became ill with a lesion characterized by subcutaneous nodules. In the nodules, there was a tendency to central necrosis, spontaneous perforation through the skin, and fistula formation. Some lesions healed within a short

time, others extended infiltratively into the surrounding tissue. One case showed numerous metastases.

The causative organism was identified as *Absidia lichtbeimi*, making the condition a mycotic infection.—[H. C. Momberg-Jorgensen: *Enzootic Mycosis in Mink*, *Am. J. Vet. Res.*, 11, (July, 1950): 334-338.]

Areas of Sensitivity in Cattle

The region of the neck was much more sensitive than the caudal fold when tested intradermally with Johnin on 5 animals sensitized with the causative organism of the disease. Similar results were obtained when tuberculin was injected into an animal sensitized with the tubercle bacillus.—[A. B. Larsen, A. H. Groth, and H. W. Johnson: *Allergic Response to Johnin and Tuberculin of Various Skin Regions of Cattle*, *Am. J. Vet. Res.*, 11, (July, 1950): 301-303.]

Lyophilization and Air Contamination

Viable microorganisms and viruses were found in the vapor removed from frozen suspensions of biologic material subjected to high vacuum desiccation (lyophilization).

The authors describe the construction of a lyophil apparatus on a small scale, which can be readily sterilized after each operation.—[C. D. Stein and Herbert Rogers: *Recovery of Viable Microorganisms and Viruses from Vapors Removed from Frozen Suspensions of Biologic Material During Lyophilization*, *Am. J. Vet. Res.*, 11, (July, 1950): 339-344.]

Hematology of Mares in Foal

Emphasizing again that the end result of any study on hematology will be influenced by the amount and kind of anticoagulant employed, time of day at which blood samples are collected, and length of time the animal is allowed to rest before samples are collected, the authors present the hematology of the Thoroughbred mare as follows: 10.52 ± 0.102 million erythrocytes per cubic millimeter; 14.98 ± 0.128 Gm. of hemoglobin per 100.0 ml. of blood; packed volume of erythrocytes, 45.10 ± 0.362 per cent; 10.01 ± 0.187 thousand leucocytes per cubic millimeter; mean cell volume, 42.92 ± 0.253 cubic microns; and a mean corpuscular hemoglobin concentration of 32.96 ± 0.115 per cent.

The differential leucocyte counts showed the following mean percentages and standard errors: neutrophils, 49.19 ± 1.004 ; lymphocytes, 43.79 ± 1.126 ; monocytes, 2.68 ± 0.154 ; eosinophils, 3.65 ± 0.238 ; and basophils, 0.66 ± 0.093 .

These results are based on a hematologic study of a population of 65 Thoroughbred mares in foal and they represent the mean values with their standard errors.—[M. F. Hansen, A. C. Todd, G. W. Kelley, and F. E. Hull: *Studies on the Hem-*

atology of the Thoroughbred Horse. I. Mares in Foal. *Am. J. Vet. Res.*, 11, (July, 1950): 296-300.]

Trichomoniasis in Bulls

Six bulls infected with *Trichomonas foetus* were examined 241 times in two to six months. This is an average of 34.4 examinations per bull and, of these, 217 (90%) were positive.

The concentration of trichomonads found was less than those characteristic of vaginal samples, but was of the same order of magnitude as found in the early stage of infections in females.

Sampling was done with a pipette similar to the one described by Hammond and Bartlett (*Am. J. Vet. Res.*, 4, Jan., 1943, 61-65). However, the pipette currently used was straight instead of bent toward one end, and the forward end had an opening at the center instead of off to one side. The pipette was constructed of 8-mm. glass tubing, and was approximately 21 in. long. It was operated with the aid of a 2-oz. rubber bulb.

When such a pipette was used, results were much more favorable than when swabs were used for sampling purposes.—[D. M. Hammond, Reid Bishop, George Jeffs, and Wayne Binns: *A Quantitative Study of Trichomonas Foetus in Preputial Samples from Infected Bulls*. *Am. J. Vet. Res.*, 11, (July, 1950): 308-314.]

Semen Dilution in Milk

Boiled milk is recommended as a diluting agent for semen. The boiling not only sterilizes the milk, but also changes the lactose to glucose and galactose, both of which are more readily available for energy production of the sperm. Cow's milk is best for bull semen, while mare's milk is preferred for stallion semen.

The procedure is simple. Milk from a healthy animal is drawn into a clean container, filtered, brought to a boil, and again filtered. Then it is cooled to the desired temperature for dilution, and the semen is diluted with it according to the need. Dilutions of 1 part semen to 2 parts milk have been used, and dilutions as high as 1:25 have been found satisfactory.

After the dilution has been made, the mixture should be stored at 32 to 36 F. and will retain its viability and fertilizing power for 120 to 169 hours.—[N. N. Michajlov: *Sperm Dilution in the Milk*. *The Czechoslovak Vet. Mag.*, Jan. 10, 1950.]—V.S.

Hypersensitivity in Bovine Mastitis

That hypersensitivity is significant in the pathogenesis of mastitis is supported by the results in rabbits, but hypersensitivity to streptococci is not necessary for the production of an udder infection.

The authors report an increased reactivity of the mammary glands following sensitization to streptococci. This reaction resembles the immediate skin reaction. It is believed that the imperfect correlation between hypersensitivity and the presence of

streptococcal infection may be due to the crudeness of the antigen employed.

The intradermal injection of a streptococcal antigen in cows infected with, or sensitized to, *Streptococcus agalactiae* resulted in swellings which were larger and more persistent than those in normal animals. On the basis of the studies reported, the authors believe that hypersensitivity of the bovine mammary gland probably is a factor in the pathogenesis of streptococcal mastitis.—[G. R. Spencer and D. Murray Angervine: *Pathogenesis of Bovine Mastitis. III. The Significance of Hypersensitivity in Streptococcal Infection*. *Am. J. Vet. Res.*, 11, (July, 1950): 317-323.]

Experimental Salmonellosis in Mink

Experimental production of *Salmonella* infection in mink and foxes appears to be difficult. Since field outbreaks of salmonellosis do occur, it would seem that some of the determining factors in these field outbreaks were not present under the experimental conditions.

An attempt to enhance the virulence of *Salmonella* organisms by suspending them in mucin and feeding to normal and depleted mink and foxes appeared to offer no advantages in the production of the experimental disease. The experiments currently reported gave no clue as to the factors which might cause the field outbreaks in mink.—[J. R. Gorbam and G. A. Baker: *Mucin Ineffective in Establishing Salmonella Infections in Mink and Foxes*. *Am. J. Vet. Res.*, 11, (July, 1950): 331-333.]

BOOKS AND REPORTS

Annual Review of Biochemistry

Each of the 22 chapters of this book provides a critical appraisal of the present status of that subject. Each appraisal is based upon reports published during the preceding year, varying from a minimum of 79 to a maximum of 358 per chapter, with an aggregate of 4,748 references for the complete volume. As the field expands, new journals appear, and the task of appraisal becomes more complex—not to mention the task of the reviewer who tries to do justice to such a monumental work.

The several chapters discuss the biochemical processes for the formation and the utilization of enzymes, carbohydrates, fats or lipids, proteins and amino acids, steroid hormones, nucleic acids and purines, and the vitamins. The role played by these various substances in the physiologic processes of the body are recorded in painstaking detail. Each tissue is studied as a unit and as an integrated portion of the entire body. Effects are studied on such basic tissues as the blood and the muscles; but also on such complex items as neoplastic tissue, the elements of immunochemistry, and the antibiotic agents.

A volume not to be duplicated anywhere, highly

technical in many respects, and yet highly practical in others, this is not a book for light reading between calls or at the end of a hard day, but for serious study by every person working in research or sincerely interested in learning the biochemical background of animal physiology.—[*Annual Review of Biochemistry*, Volume 19. By J. M. Luck, Editor. Cloth, 596 pages. Annual Reviews, Inc. Stanford, Calif. 1950. Price \$6.00.]

Topographic Anatomy of the Dog

Written primarily as a guide to dissection for students in anatomy, the book actually accomplishes more than its specified purpose. Taken as a unit it does follow a logical scheme for the dissection and identification of structures in the dog cadaver. Considered from the angle of practice, however, many of these steps can be used in reviewing the anatomy of the clinical patient being prepared for surgery.

This is a reprinting of a volume previously reviewed (see JOURNAL Sept., 1949, p. 197), but the present copy is presented on a much better grade of paper. Consequently, the cuts are sharper and the type is cleaner. Moreover, the binding has been improved, and the price has been reduced.—[*Topographical Anatomy of the Dog*. By O. C. Bradley. Revised by Tom Grahame. 5th ed. Cloth, 319 pages. Illustrated, some plates in color. The Macmillan Co., 60 Fifth Ave., New York 11, N. Y. 1948. Price \$4.50.]

Animal Science

Based on the thesis that a people can be happy and well-nourished only so long as they live in the midst of an animal agriculture, this book traces the growth and development of animal science from the domestication of animals to the present-day complex programs of breeding, feeding, managing, marketing, and processing animals and the food products which they provide for man.

Successful animal production today is not a result of chance; it is derived from years of experience and scientific research—on farms and ranches, at research and experiment stations, and in the nation's kitchens. Public opinion determines what will sell, and the livestock owners have geared themselves to produce what the public demands. This book details the problems of practical animal science in such a way that they can be appreciated by the practicing veterinarian. Such knowledge will assist him to provide for his clients, the livestock owners, a service which will integrate most effectively with the type of animal agriculture which they must use.

One chapter of 22 pages is devoted to the general aspects of animal health, disease prevention, and parasite control. The general tone of this chapter may be judged from two quotations: "Although modern science has conceived many artificial protective mechanisms against disease, there is no substitute for livestock sanitation and disease pre-

vention. The artificial achievements, valuable as they are, are merely an adjunct to a high state of natural health that is built around a program of improved breeding, feeding, and management." And later: "It must be pointed out that improper use of vaccines may result in disease outbreaks. It is strongly advised, therefore, that a veterinarian be consulted about their use." There is no discussion of the individual diseases nor their treatment.

This book deserves a place in the library of every veterinarian who conducts a general, large animal practice. Having attained such a place on the shelf, it will be consulted frequently, and to the advantage of client and practitioner alike.—[*Animal Science*. By M. E. Ensminger. Cloth, 1,059 pages. 401 figures. The Interstate Printers and Publishers, 19-27 North Jackson St., Danville, Ill. 1950. Price \$6.00.]

Brucellosis

This book is a collection of the papers presented at a symposium in Bethesda, Md., Sept. 22-23, 1949, under the combined sponsorship of the National Research Council, the Bureau of Animal Industry, and the Microbiology and Immunology Study Section of the National Institutes of Health, U. S. Public Health Service, Federal Security Agency.

The several papers were each prepared by recognized authorities in the special fields, and it is gratifying to note that the veterinary medical topics are discussed by veterinarians. Some of the phases covered are history, physiology, variations, chemistry, pathogenesis and pathology, immunology, bactericidal tests, laboratory tests, ring milk test, human brucellosis and its therapy, and brucellosis in cattle, swine, and other animals. There was a report from a rural medical practitioner, but none from a rural veterinarian.

In true symposium style, the book provides a review of all phases of the problem, rather than the new findings. It provides a convenient summary of the history and present status of the brucellosis problem.—[*Brucellosis. A Symposium*. Cloth, 271 pages. American Association for the Advancement of Science, 1515 Massachusetts Ave. N. W., Washington 5, D. C. 1950. Price \$2.75.]

Mendelism and Evolution

This book presents a concise but authoritative review of the physical basis of heredity—genetics, mendelism, and evolution. The monograph discusses the effects of domestication, and of external and internal environmental factors on heredity.

This is not an exhaustive treatise, but one which will help the busy practitioner to review a field which is important to all owners of animals, and hence to the successful practice of veterinary medicine.—[*Mendelism and Evolution*. By E. B. Ford. 5th ed. A Methuen Monograph. Cloth, 122 pages,

4½ in. by 7 in. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. 1949. Price \$1.25.]

The Control of Communicable Diseases in Man

This is an official report of the American Public Health Association which lists the standard regulations for the control of notifiable communicable diseases. The conditions are listed alphabetically, and under each title the book lists identification or definition, etiologic agent, source of infection, mode of transmission, incubation period, period of communicability, susceptibility and resistance, prevalence, and control methods.

It is a book written primarily for physicians, but it provides a ready reference for the veterinarian engaged in public health work or in practice—particularly so, when dealing with animal problems which may result in human infection.—[*The Control of Communicable Diseases in Man*. By Subcommittee on Communicable Disease Control of the Committee on Research and Standards of the American Public Health Association, Haven Emerson, M.D., Chairman. 7th ed. Paper. 159 pages. 4½ in. by 7½ in. American Public Health Association, 1790 Broadway, New York 19, N. Y. 1950.]

The Classification of Animals

The pattern of animal classification is complex, but this monograph provides a ground plan or outline for grouping the almost infinite variety of animated nature. It is a brief discussion of the genetic background and the systematic characters, as well as the nomenclature used in developing keys to be used by zoologists.

This little booklet will help the veterinarian review the background of his college work in this subject, and help him to understand why treatments succeed with certain animals, but fail with others.—[*The Classification of Animals*. By W. T. Calman. A Methuen Monograph. Cloth. 54 pages. 4½ in. by 7 in. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. 1949. Price \$1.25.]

Knee Pants

This book tells the story of a boy in knee pants, whose father was a veterinarian in New York City during the years when the automobile began to replace the horse for trucking as well as for pleasure and business driving.

Familiar to all veterinarians in practice will be the jangling of the telephone at meal times, the feverish excitement incident to a midnight case of colic in the personal mount of an esteemed client, and the "around-the-clock" activity for weeks on end in the midst of an epizootic—this one was glands.

Woven into the story of the practice is a thread of family life which will bring to many veteri-

narians a better understanding of the adjustments made by their own families in the interests of professional demands upon the head of the household.

Not a book to improve your knowledge of veterinary medicine, though it does not offend such knowledge. Rather, a book which will bring back nostalgic memories of youth, and may help the young practitioner to be a better father.—[*Knee Pants*. By Emile C. Schurmacher. Cloth. 244 pages. Thomas Y. Crowell Co., 432 Fourth Ave., New York 16, N. Y. 1950. Price \$3.00.]

Sterility and Delayed Breeding

This is the title of a bulletin which discusses some of the factors involved in infertility and delayed breeding in dairy cattle. Much of the basic discussion in the early pages of the bulletin is valuable and would help veterinarians to understand the information presented to, and the reasoning followed by, owners of dairy cattle.

Discussion of some of the specific causes of abortion and infertility, however, will not meet with such general approval. For instance, the statement that "rough treatment, undue exertion, and fright, all take their toll of developing calves," is one which will be questioned or which the casual dairyman will place undue emphasis upon in trying to explain away some of his breeding troubles. And again, the statement that brucellosis is "one of the most easily controlled" causes of abortion in cattle would not seem to be in line with the many and costly experiences of dairymen throughout the United States.

The bulletin also goes on to discuss, in rather general terms, trichomoniasis, *Vibrio fetus* infection, acidity of the vagina, the chronic buller, absence of heat, and other items. A few sound statements toward the end of the bulletin are effective; namely, that artificial breeding is neither more nor less efficient than the direct use of a bull, and that the man who raises his own replacements has far less sterility in his herd than the one who buys replacements.—[*Sterility and Delayed Breeding in Dairy Cattle*. By S. A. Asdell. Cornell Extension Bulletin 737, June, 1948.]

Podologia

In the all-but-forgotten days of equine economic supremacy, books on the horse's foot (*foot* in the anatomo-physiologic sense) were numerous and all-embracing. To the present generation of our mechanized country, such books are merely history. Phalangeal osteology, syndesmolgy, arthrology, esthesiology, myology, physiology, pathology, hygiene, conformation, deformation, stance, hoof substance, lameness, and shoeing (separate and collective) were "must" studies of the classroom and clinic. As the author truthfully says "The object is to fill one gap in the veterinary literature." The book does precisely that, since no one has ventured to close the gap in the last fifty years.

The volume is organized in eight parts subdivided into sixteen chapters. The parts are: Anatomy (93 pages), Exterior Anatomy (55 pages), Physiology (39 pages), Etiology (35 pages), Pathology (69 pages), Hygiene of the Foot (9 pages), Shoeing (147 pages), Jurisprudence (23 pages), all nicely illustrated with drawings, charts, halftones, and color plates, the majority of which have to be credited to books of earlier days.

That *Podologia* goes back 136 years to give credit to former writers is a tribute to the character of the theory and practice of horseshoeing in the distant past. Cited are the works of Greve (1814), Lessona (1827), Megnin (1867), Lemoigne (1870), Williams (1872), Möller (1880), and others of the nineteenth century. The book is, therefore, a precious piece for the veterinary historian of the present time.

As of 1950, the arrival of this comprehensive book is a major sensation. Specialists of the race tracks, bridle paths, and the horse shows could well afford to learn the Italian language in order to profit by its informative contents or, better still, to publish an English edition. It is not likely that such a book (in English) would have any competition in the next fifty years. In the interim, the Italian edition ought to be procured by the libraries of our educational institutions and by those in the equine field who read that language.—(*Podologia*. By Professor Attilio Mensa, director of veterinary surgery at the University of Bologna. Paper bound. 491 pages. Subject and author indexes. Profusely illustrated. Unione Tipografico-Editrice Yorinese, Turin, Italy, 1950.)

Veterinary Surgery

This book is divided into three parts: General Surgery, Surgical Diseases, and the Principles of Surgery and of Surgical Procedures. The domestic reviews are very favorable.—[*Veterinary Surgery (in the Czech language)*. 842 pages. 598 pictures. 1950. Price \$18.]—V.S.

Received But Not Reviewed

The Organization and Operation of Artificial Breeding Associations. Revised 1948. American Dairy Science Association, Ithaca, N. Y. 22 pp.

Dairy Breeding Cooperatives, their Development, Practices, and Policies. Circular C-133, January, 1949. Director of Information and Extension, Farm Credit Administration, Washington 25, D. C. 29 pp.

The Endotoxin of Bact. Coli. By R. S. Roberts. Reprinted from the *Journal of Comparative Pathology and Therapeutics*, 59, (1949): 284-304.

Report of Director, Abattoir and Live Stock Market Department, July 1, 1948, to June 30, 1949. City of Johannesburg, South Africa. Radford Adlington, Ltd., Marshall and Rissik Sts., Johannesburg, South Africa. 16 pp.

Swine Brucellosis Control Project 1946. College of Veterinary Medicine, University of Illinois, Urbana. 6 pp.

Technical Development Division Summary of Activities. No. 20. Restricted. Federal Security Agency, Public Health Service, Communicable Disease Center, Savannah, Ga. 238 pp.

Genetics and Animal Breeding. Popular Bulletin No. 189. Agricultural Experiment Station, State College of Washington, Pullman. 58 pp.

Avian Tuberculosis. Leaflet. National Live Stock Loss Prevention Board, Omaha, Neb. 4 pp.

External Parasites of Livestock, Methods of Control. Bulletin 406-A. Extension Service, Colorado A. & M. College, Fort Collins. 19 pp.

Annual Report, 1948. The Borden Company, 350 Madison Ave., New York 17, N. Y. 28 pp.

Protect Your Poultry Against Newcastle Disease. Circular 651. College of Agriculture, University of Illinois, Urbana. 16 pp.

A Dental Health Program for the Community, State and Nation. American Dental Association, 222 E. Superior St., Chicago 11, Ill. 15 pp.

Agricultural News Letter. Vol. 18 — No. 1. Public Relations Dept., E. I. du Pont de Nemours & Co., Wilmington 98, Del. 18 pp.

Medical Education in the United States and Canada, 1948-1949. Reprinted from the Educational Number of the *Journal of the American Medical Association*, 141, (Sept. 3, 1949): 27-93. American Medical Association, 535 N. Dearborn St., Chicago, Ill.

The Rosemount Research Center of the University of Minnesota. Pamphlet. Rosemount Research Center, University of Minnesota, Rosemount. 12 pp.

Americans Tomorrow. By The Honorable Raymond E. Baldwin before the National Board of Fire Underwriters. National Board of Fire Underwriters, 85 John St., New York 7, N. Y. 15 pp.

Fire Insurance, Prepared and Progressive. By J. M. Haines. National Board of Fire Underwriters. 85 John St., New York 7, N. Y. 15 pp.

The Sealing Under Vacuum in Ampoules of Freeze Dried Suspensions of Bacteria and Viruses. By O. Bosgra. Reprinted from *Antonie van Leeuwenhoek*, 13, (1947): 165-169. 5 pp.

Effect of Stilbestrol on Udder Development, Pelvic Changes, Lactation and Reproduction. Bulletin 440. Agricultural Experiment Station, University of Florida, Gainesville. 35 pp.

The Liver Cord Concept after One Hundred Years. By Hans Elias. Reprinted from *Science*, 110, (1949): 470-472. 3 pp.

DDT Poisoning and the Elusive "Virus X": A New Cause for Gastro-Enteritis. By M. S. Biskind, M.D. Reprinted from *American Journal of Digestive Diseases*, 16, (1949): 79-84. 6 pp.

Initial Observations on the Incidence of Johne's Disease in Barbados, B.W.I. By L. R. Hutson. Reprinted from *Canadian Journal of Comparative Medicine*, (May, 1949): 122-124. 3 pp.

Studies on Experimental Blackhead Infection in Turkeys. By Francis McKay and N. F. Morehouse.

Reprinted from the *Journal of Parasitology*, 34, (1948): 137-141. 5 pp.

Accelerated Growth in Chickens and Turkeys Produced by 3-Nitro-4-Hydroxyphenylarsonic Acid. By Neal F. Morehouse. Reprinted from *Poultry Science*, 28, (1949): 375-384. 10 pp.

Water Consumption in Growing Turkeys. By Neal F. Morehouse. Reprinted from *Poultry Science*, 28, (1949): 152-153. 1 p.

The Journal of Ayurveda. Vol. 1, No. 1, January, 1949. Majumdar Laboratories, 90, Connaught Circus, New Delhi, India. 55 pp.

Report to the Montana Livestock Sanitary Board, Dec. 1, 1947 to Nov. 30, 1948. Montana Livestock Sanitary Board, Helena, Mont. 33 pp.

Country Gentleman, Editorial Index to Vol. CXIX, 1949. Country Gentleman, Independence Square, Philadelphia 5, Pa. 40 pp.

Management of Dairy Cattle in Florida. Bulletin 464. University of Florida Agricultural Experiment Stations, Gainesville, Fla. 56 pp.

Wireworms and Their Control. Circular 77. South Dakota Agricultural Experiment Station, South Dakota State College, Brookings. 4 pp.

1949 Feeding Practices. Bulletin No. 26. National Cottonseed Products Association, Inc. The Educational Service, 618 Wilson Bldg., Dallas 1, Texas. 40 pp.

Control of Livestock Parasites with Chlordane. Technical Supplement No. 203-C, February, 1949. Julius Hyman & Co., Denver, Colo. 4 pp.

REVIEWS OF VETERINARY MEDICAL FILMS

Some Uses for Gelfoam in Veterinary Surgery.—Silent, 16 mm., color; running time about thirty-five minutes. Produced by Drs. J. E. Greene, F. B. Hoerlein, and Nelson D. Crandall, of the Department of Small Animal Medicine and Surgery, Alabama Polytechnic Institute, Auburn, Ala., with the cooperation of Dr. J. LaVere Davidson, of the Upjohn Company, Kalamazoo, Mich. Available from the AVMA Motion Picture Library, 600 S. Michigan Ave., Chicago 5, Ill.

The use of the intermedullary pin for fracture reduction, surgical intervention in paraplegia due to herniation of the nucleus pulposus, and the enucleation of the eye are depicted in this film. The reduction of the fractures of the femur—a spiral midfemoral and a transverse fracture of the distal third, and the humerus—with the use of the 1/8-in. steel pin, are excellently photographed and show quite clearly the technique involved. Two methods of inserting the pin, from the proximal trochanteric fossae and into the distal end of the proximal portion of the femur are included in the photographs. There are also roentgenograms showing the location of the pin after the

reduction is completed. The surgical technique shown is no doubt ideal, but to some practitioners it may seem that an unnecessarily large number of elaborate instruments are used.

The pictures of the reduction of the herniation of the nucleus pulposus do not demonstrate as clearly the surgical procedure followed and are not as instructive as those of the fracture reductions. However, it is a more difficult operation to photograph.

The eye enucleation operation is clearly photographed and the technique used is easy to follow. The picture also shows how absorbable gelatin sponge (Gelfoam) is used in these operations in the dry form or soaked in thrombin or penicillin or both, as well as demonstrating the surgical techniques followed. The film is of interest to all veterinarians and to advanced students of veterinary medicine, but not to laymen. The photography is excellent and the surgical technique is probably ideal.

Bringing Up Your Puppy.—Sound, 16 mm., color; running time twenty minutes. Available from Gaines Dog Research Center, 250 Park Avenue, New York 17, N. Y.

As the title suggests, this film is designed to help dog owners train their pets to become good members of the family. The opening pictures review briefly the general role of domestic animals and point out that they can and must be trained. There is a brief review of the uses man has made of his friend the dog and also some pictures of dog-training schools and shows. All of the pictures are excellent, and the narration by Lowell Thomas and Helen Hayes is, of course, excellently done.

The corrective training advice is concerned with barking, jumping up, chasing cars. How to train a dog to heel, to stay, sit, and come on command, and the dangers of teasing the young puppy, of inconsistency, or delayed punishment in training, and of irregular feeding are all shown.

A short section on the dog's health advises the dog owner to take the temperature of his animal if it does not appear to be normal. If the temperature is high, they are advised to take the dog to a veterinarian. One health tip that will not be generally accepted is that of cleaning ears with alcohol-soaked swabs. But, in general, the advice is constructive and worthwhile.

This film will be of interest to all dog owners and prospective dog owners. Veterinarians will benefit from some of the tips revealed by the picture which they can use in counseling with clients. The film, though rather long, moves along and will be well received.

Corrigendum.—The rental for the film "Laboratory Diagnosis of Rabies" is \$2.00; not \$5.00, as listed in the review of the film in the September JOURNAL, p. 246.

THE NEWS

Professional Draft Bill Passes

Legislation authorizing the President to require special registration of and, on the basis of requisitions submitted by the Department of Defense and approved by the President, make special calls for male physicians, dentists, veterinarians, optometrists, pharmacists, and osteopaths, up to the age of 50 years, was passed by the Congress the last week in August and was signed by the President on September 9. Persons called under this legislation shall be liable for not more than twenty-one months of service. Members of Reserve components of the Armed Forces are not subject to induction under this legislation.

In registering and inducting under this legislation, the President shall, in so far as practicable and desirable, follow the following order of priority.

First.—Those who participated in the Army specialized training program or similar Navy programs, and those who were deferred from service during World War II to complete their professional education and who had less than ninety days active duty in the Armed Forces or Public Health Service subsequent to completion of, or release from, the program.

Second.—Those mentioned in the first category who had more than ninety days but less than twenty-one months active duty with the military branches or Public Health Service.

Third.—Those who did not have active service in the Army, Air Force, Navy, Marine Corps, the Coast Guard, or the Public Health Service subsequent to Sept. 16, 1940.

Fourth.—Those not included in the first and second priority, who were on active duty subsequent to Sept. 16, 1940. Inductions of persons in this priority shall be made in accordance with regulations prescribed by the President, which may provide for the classification of such persons in groups according to the number of full months of such service which they have had and for the induction of the members of such group after the induction of any other group having lesser service.

DEFERMENTS

The President is authorized to provide for the deferment of any individual whose deferment is found to be equitable and in the national interest, taking into consideration the length of his previous service and the extent of his participation in the ASTP or Navy programs, reasons of hardship or dependency, and the maintenance of the national health, safety, or interest.

The law also calls for the deferment of premedical, pre dental, and preveterinary medical students at least equal to the average numbers of male

students in the preprofessional schools during the years 1945-1950.

The President shall establish a National Advisory Committee to advise Selective Service and coordinate the work of such state and local voluntary advisory committees as may be established. The members of the National Advisory Committee shall be selected from individuals who are outstanding in medicine, dentistry, and allied sciences.

AVMA RESOLUTION ADOPTED

In compliance with the policy expressed in a resolution adopted by the House of Representatives on Aug. 20, 1950, during the AVMA annual meeting in Miami Beach, the Association supported the above legislation. The resolution adopted read in part as follows: "The American Veterinary Medical Association . . . resolves to support an amendment to the Selective Service Act which will provide for the Department of Defense to procure the services of those veterinarians who participated in the Army Specialized Training Program, or were deferred from active duty during World War II to complete their education, in such number as may be required, for a period not to exceed twenty-one months provided that no veterinarian shall be called for active service . . . until his services are required . . . in his professional capacity as a veterinarian . . . and that the proper recognition of the importance of civilian veterinary service to the livestock industry and health and welfare of the nation is clearly stated. . . ."

The complete resolution and additional statements were sent to the Armed Services Committee of the Senate and House of Representatives. Later, Dr. C. D. Van Houweling, assistant executive secretary of the AVMA, appeared before the House Armed Services Committee while they were holding hearings on this "draft" legislation and filed a prepared statement and made additional comments in support of the proposed law.

FORMER ASTP TRAINEES URGED TO VOLUNTEER

It can not be determined at the time of going to press when this amendment to the Selective Service Act will become effective. Since Reserve officers are being called to active duty without their consent, the Executive Board directed the central office to write to those who participated in the ASTP and who did not serve on active duty, or who do not hold Reserve commissions, urging them to apply for commissions and active duty in the Veterinary Corps. This action was endorsed by the deans of the colleges of veterinary medicine. It was the opinion of the AVMA Executive Board

and the delegates to the House of Representatives that those who were deferred from active duty to complete their education, and who received the benefits of the ASTP, have an obligation to serve in the Veterinary Corps before others who had long periods of active duty during the last war. This letter was sent to approximately 880 veterinarians who, according to Army records, are in the above category. Volunteers for commissions and active duty will prevent the call to active duty of Reserve officers who had tours of extended active duty during World War II. The Veterinary Corps of the Army and the Air Force are accepting applications for commissions and active duty and complete details as well as the application forms can be obtained from nearby Army or Air Force installations or by writing directly to either the Veterinary Division, Office of the Surgeon General, Department of the Army, Main Navy Building, Washington 25, D. C.; or Veterinary Division, Office of the Surgeon General, Headquarters U.S. Air Force, Washington 25, D. C.

SELECTION OF RESERVE OFFICERS FOR ACTIVE DUTY

The Surgeon General of the Department of the Army has instructed Army area surgeons, dental surgeons, and veterinarians to make every effort to enlist the cooperation of the respective professional associations in their Army areas in the selection of Reserve officers to be called to active duty without their consent. The AVMA office recently sent a letter to secretaries of all state associations advising them of developments and the possibility of a request for assistance from Army officials. Since Reserve officers' records are maintained at headquarters of state military districts, the initial screening will be done by commanders of military districts. These officials have also been encouraged to enlist the cooperation of state and local associations in making their selections. It is understood that Reserve officers selected by commanders of military districts will be ordered to have final type physical examinations and their names will then be forwarded to Army area headquarters. Army area commanders will make the final selections and forward the names of those selected to the Department of the Army in Washington.

LATE INFORMATION BEFORE GOING TO PRESS

Drs. W. M. Coffee, J. G. Hardenbergh, and C. D. Van Houweling represented the AVMA at a regional conference of the Council on National Emergency Medical Service of the American Medical Association held in Chicago on Sunday, September 10. Civil defense, procurement and assignment of professional personnel, and the draft status of medical, dental, and allied specialist categories were the principal topics discussed by A.M.A. and state medical association conferees and by Armed Forces representatives. At this meeting,

copies of a directive from Secretary of Defense Johnson, dated Sept. 7, 1950, with respect to priorities of call up of reserve officers, were made available. This directive to the Secretaries of the Army, the Navy, and the Air Force, called for "strict" observance of priorities specified in the memorandum. These priorities are essentially the same as those outlined earlier in this article.

The memorandum also instructed the respective military departments to review their procedures in issuing call up orders to Reserve officers in order to eliminate inequities to the maximum extent possible.

Another development since the previous issue of the JOURNAL (see pp. 247-248, September) is an encouraging response to the appeal for volunteers from ASTP trainees and deferred graduates for commissions and active duty. It appears that the quotas of Reserve medical, dental, and allied specialist officers to be called up for active duty without their consent can be materially reduced from the original estimates.

Foreign Veterinary Schools Listed by the Council on Education

At the meeting of the AVMA Council on Education on May 6, 1950, approval was given for the publication of a list of foreign veterinary colleges, on which relatively recent and complete information was available. The list is intended for the guidance of veterinary medical institutions and organizations in the United States and Canada, many of which have received inquiries in the past two or three years about the acceptance of credentials presented by foreign veterinary graduates. The following statement and list was prepared by a subcommittee of the Council on Education, Drs. S. C. Dildine and W. A. Hagan, who have compiled and studied as much information as could be obtained on a number of foreign veterinary schools.

On the basis of information presently available, the Council on Education of the American Veterinary Medical Association is of the opinion that veterinary institutions and veterinary organizations in the United States and Canada would be justified in considering past and current graduates of the following foreign veterinary schools on the same basis that they consider graduates of approved veterinary schools in the United States and Canada. This list is not final and will be supplemented as information is compiled from other schools.

Denmark.—(Copenhagen) Royal Veterinary and Agricultural High School.

British Isles.—Members of the Royal College of Veterinary Surgeons. Note: This is not a college in the sense in which the term is used in North America. It is a governmentally chartered licensing agency to which members are admitted only after having graduated from approved veterinary schools and after having passed examinations in professional subjects.

France.—(Alfort) National Veterinary College of Alfort; (Lyon) National Veterinary College of Lyon; (Toulouse) National Veterinary College of Toulouse.

Netherlands.—(Utrecht) Royal University of Utrecht.

Norway.—(Oslo) Royal Veterinary College.

South Africa.—(Onderstepoort) University of Pretoria (formerly Transvaal University).

Sweden.—(Stockholm) Veterinary High School.

The following veterinary schools had distinguished faculties and maintained high standards prior to the time they were dominated by the Nazi government of Germany. The Council is of the opinion that graduates of these schools prior to the time of Nazi domination may be regarded in the same light as graduates of the schools named above.

Austria.—(Vienna) Veterinary High School of Vienna.

Germany.—(Berlin) Friedrich-Wilhelm's University; (Hannover) Hannover Veterinary High School; (Leipzig) University of Leipzig; (Munich) Bavarian Ludwig-Maximilian's University; (Giessen) Justus Liebig High School for Agriculture and Veterinary Medicine.

Hungary.—(Budapest) Hungarian University of Agricultural Sciences.

Changes in AVMA Central Office Staff Assignments

Following the annual meeting of the Executive Board in Miami Beach the latter part of August, the following changes in duties of central office staff members were announced, effective immediately.

Dr. L. A. Merrillat, who served as executive secretary in 1939-1940 and who has been editor-in-chief since 1939, becomes editor emeritus and is placed on a retirement status. He will continue to contribute to the *JOURNAL* and will also aid in completion of the "AVMA Style Book," manuscript for which he has been preparing during the past two years and which is now being revised for publication in the near future.

Dr. R. C. Klussendorf, who came with the association, April 1, 1945, as assistant executive secretary and associate editor, becomes editor-in-chief of the monthly *JOURNAL* and the quarterly *American Journal of Veterinary Research*. During the past three years, Dr. Klussendorf relieved Dr. Merrillat of most of this work on association publications.

Dr. C. D. Van Houweling, who joined the staff Dec. 1, 1948, as director of professional relations, becomes assistant executive secretary and will help supervise the work of several departments of the executive office. He will also continue to develop the professional relations activities of the association.

Dr. J. G. Hardenbergh, who has been executive secretary and managing editor since Jan. 1, 1941, will continue as general manager of the association and managing editor of its publications.

Committees Appointed for First Pan American Congress

The following committees have been appointed for the first Pan American Veterinary Congress, tentatively scheduled for May 20-26, 1951, at the veterinary college of San Marcos University in Lima, Peru:

Central Executive Committee—Drs. José Santivañez Morales, chairman; Benjamin Blood, of the PASB; and V. L. Kesteven, of the F.A.O. Organization Committee—Drs. José Santivañez Morales, chairman; Teodoro Ramos Saco, Humberto Ruiz Urbina, Edilberto Suarez, and Julio Pons Muzzo. Program Committee—Drs. Teodoro Ramos Saco, chairman; Julio Alencastre, Hellmut Kafka, Julio Pons Muzzo, Alberto Cuba Caparó, and Luis Gonzales Mugaburu. Reception Committee (hotel accommodations, travel facilities)—Drs. Edilberto Suarez, chairman; Marek Rakower, Moisés Inzúa, and Mauricio San Martín. Publicity and Exhibitions Committee—Drs. Humberto Ruiz, chairman; Carlos Chavez and Octavio Velarde.

The United States Committee includes Drs. W. A. Hagan, George H. Hart, Harry G. Geyer, J. A. McCallam, B. T. Simms, James H. Steele, and C. D. Van Houweling (see September *JOURNAL*, p. 238).

There will also be a women's committee to plan social activities and entertainment during the congress. s/JOSE SANTIVANEZ.

National Board of Veterinary Medical Examiners

The National Board of Veterinary Medical Examiners came into being as the result of a special committee which submitted its final report in 1948 at the San Francisco meeting (see *JOURNAL*, November, 1948: 527-528).

At its meeting in Miami Beach, the Board elected five additional members as specified. These are listed with the complete personnel below. The Board also elected an Executive Committee of five members, as follows: Drs. E. A. Benbrook, G. L. Caldwell, J. D. Gadd, J. H. Steele, and J. H. Yarborough, with President W. R. Krill and Secretary-Treasurer J. G. Hardenbergh as *ex officio* members.

The Board adopted a constitution and a set of rules and regulations. Under these, it will prepare to hold examinations and issue diplomas to qualified persons. Such examinations and diplomas will establish the quality of education and training possessed by the successful candidates, but will not entitle anyone to practice veterinary medicine in any state. Any state examining board may accept

any examination in lieu of its own, but at no time will the National Board give an examination in practical or clinical veterinary medicine. This latter examination is the one upon which a license to practice must be based, and it is intended that this shall always be given by a state examining board.

The personnel of the National Board is given below, the members being grouped according to the agencies which selected them for such service, or which they represent *ex officio*.

PERSONNEL

AVMA House of Representatives—5 practitioners

S. W. Stiles, Portland, Maine.
W. O. Keefer, Springfield, Ohio.
C. W. Bower, Topeka, Kan.
Otto Stader, Ardmore, Pa.
F. D. Egan, Farmington, Mich.

Veterinary College Faculties—5

J. H. Millitt (anatomy), State College, Texas.
H. J. Stafseth (bacteriology), East Lansing, Mich.
E. A. Benbrook (parasitology), Ames, Iowa.
Rue Jensen (pathology), Fort Collins, Colo.
H. H. Dukes (physiology), Ithaca, N. Y.

National Conference of State Veterinary Examining

Boards—5

P. G. MacKintosh, Yakima, Wash.
C. N. Bramer, Evanston, Ill.
J. D. Gadd, Towson, Md.
E. C. Jones, Los Angeles, Calif.
C. C. Rife, Atlanta, Ga.

AVMA Council on Education—2

C. C. Hastings, Williamsville, Ill.
S. W. Haigler, St. Louis, Mo.

AVMA President

W. M. Coffee, La Center, Ky.

AVMA Executive Secretary

J. G. Hardenbergh, Chicago, Ill.

National Association, Chief Livestock Sanitary Officials—1

A. K. Carr, Sacramento, Calif.

Research Workers in Animal Diseases in North America

—1

A. G. Karlson, Rochester, Minn.

American Animal Hospital Association—1

L. W. Goodman, Manhasset, N. Y.

Bureau of Animal Industry, Chief

B. T. Simms, Washington, D. C.

Veterinary Corps, U. S. Army

Colonel G. L. Caldwell, Washington, D. C.

Veterinary Division, U. S. Public Health Service, Chief

J. H. Steele, Atlanta, Ga.

Selected by the above members—5

M. R. Blackstock, Spartanburg, S. Car.
W. R. Krill, Columbus, Ohio.
L. C. Payne, Ames, Iowa.
W. T. S. Thorp, Bethesda, Md.
J. H. Yarbrough, Miami, Fla.

As specified in the Constitution, the objects of the National Board shall be "to advance the science of veterinary medicine; to elevate the standard of qualification for the practice of veterinary medicine; and to provide a basis for admission of qualified persons to the practice of veterinary medicine in any state, territory or dependency of the United States without further written examination by the licensing boards thereof or other agencies by giving a comprehensive examination acceptable to such boards and agencies, and furnishing to qualified applicants who successfully pass the examination a certificate of qualification, which examination and certificate may be used in whole or in part by such licensing boards or agencies in lieu of their own for purpose of granting a license to practice veterinary medicine."

WOMEN'S AUXILIARY

Thirty-Third Annual Meeting of Women's Auxiliary.—After attending the Opening Session of the Eighty-Seventh annual meeting of



Mrs. Dennis Coughlin

the AVMA, which convened in Miami Beach Aug. 21-24, 1950, the Women's Auxiliary were guests at a tea on Monday afternoon, August 21, given by the women of the local committee.

At the meeting of the Auxiliary House of Representatives on Tuesday, brief reports were presented by delegates from the state and regional auxiliaries, and from the junior auxiliary groups. The officers elected were Mrs. C. M. Rodgers, Blandinsville, Ill., chairman



Members of Women's Auxiliary Executive Board attending the women's tea at the Delano Hotel during the Miami Beach session. Left to right—Mesdames A. E. Bott, Russell A. Runnells, C. C. Rife, C. L. Miller, H. S. MacDonald, Dennis Coughlin, V. H. Miller, and C. E. Bild.

and Mrs. A. E. Coombs, Skowhegan, Maine, recorder.

The luncheon and annual meeting were held on Wednesday, at which time reports were given by retiring officers of the Auxiliary. The new officers are Mrs. Dennis Coughlin, Knoxville, Tenn., president; Mrs. C. E. Bild, Miami, Fla., president-elect; Mrs. H. S. MacDonald, Toronto, Canada, first vice-president; Mrs. Russell A. Runnells, East Lansing, Mich., second vice-president; Mrs. L. R. Richardson, Ravenna, Ohio, third vice-president; Mrs. C. L. Miller, River Forest, Ill., secretary; and Mrs. C. C. Rife, Atlanta, Ga., treasurer.

The following nominating committee for 1951 was appointed by Mrs. Dennis Coughlin, president: Mrs. J. E. Scatterday, Jacksonville, Fla.; Mrs. Walter Krill, Columbus, Ohio; and Mrs. G. H. Good, Wheatland, Wyo. Mrs. Glenn Case, Kewanee, Ill., was appointed historian.

California Auxiliary.—The Women's Auxiliary to the California State Veterinary Medical Association met at the Hotel Claremont, Berkeley, on June 26-28, 1950. After the business meeting, members enjoyed the annual luncheon, a card party, sight-seeing tours, and a brunch. New officers of the Auxiliary are Mrs. E. V. Edmonds, Oakland, president; Mrs. Herbert I. Ott, Norwalk, vice-president; Mrs. T. J. Hage, Davis, secretary-treasurer; Mrs. Carl E. Wicktor, Montebello, member-at-large; and Mrs. G. N. Miller, Covina, junior past president.

s/Mrs. H. I. Ott, Retiring Secretary.

Kentucky Auxiliary.—The Women's Auxiliary to the Kentucky Veterinary Medical Association met July 12 in Louisville with 29 in attendance. After a "Get Acquainted Hour" sponsored by the Jefferson County Auxiliary, members enjoyed a luncheon and conducted a business meeting. Officers elected were: Mrs. Wm.

McGee, Lexington, president; Mrs. R. J. Ausherman, Lexington, vice-president; Mrs. Delano Proctor, Lexington, secretary-treasurer. The members joined their husbands for the banquet and dance.

s/(Mrs. EDWARD) HELEN LANG.

Northwest Auxiliary.—At the 1950 annual meeting of the Northwest Veterinary Medical Association, the women enjoyed tours through the Annie Wright Seminary, Point Defiance Park, Brown and Haley Candy Co., and the Seattle-Tacoma Airport, and a Smorgasbord and the banquet.

U. S. GOVERNMENT

Conference of Public Health Veterinarians.—Dr. James H. Steele, chief, Veterinary Public Health Division, Communicable Disease Center, U.S. Public Health Service, was chairman of the conference of public health veterinarians in Atlanta, Ga., Aug. 12-18, 1950. Among the subjects on the program were rabies and related problems; virus, rickettsial, bacterial, and parasitic diseases of animals; fungus infections; and toxicology of insecticides and rodenticides. Communicable Disease Center programs on training, engineering, entomology, laboratory, and epidemiology were discussed by members of the staff and the objectives of veterinary public health were outlined by Dr. Steele.

Those in attendance visited the Communicable Disease Center Laboratory and Audio-Visual Services, and the Technical Development Services in Savannah, Ga.

Dr. Tierkel to Serve on WHO Rabies Panel.—Dr. Ernest S. Tierkel (UP '42), assistant chief of the veterinary public health branch, Communicable Disease Center, Atlanta, Ga., has been named to a five-year term on the World Health Organization's panel on rabies. In his new honorary post, Dr.



Officers of Women's Auxiliary and members of Local Committee at the luncheon and annual meeting of the Women's Auxiliary at the Steak House during the Miami Beach session.

First row (left to right)—Mesdames C. C. Rife, H. S. MacDonald, R. C. Klussendorf, C. L. Miller, V. H. Miller, C. M. Rodgers, Dennis Coughlin, J. E. Scatterday, D. A. Sanders, C. P. Zepp, Sr. Second row (left to right)—Mesdames A. E. Coombs, Nathan E. Wernicoff, Joseph H. Moore, W. M. Coffee, A. E. Bott, Jack Knowles, H. V. Bice, Jr., C. E. Bild, Robert Knowles, Russell A. Runnells.

Tierkel, who also is in charge of the Center's rabies control studies, supervising the rabies laboratory in Montgomery, Ala., will advise WHO headquarters of new research developments in the field of rabies in the United States.

Dr. Tierkel has recently assisted the Territorial Health Department in Puerto Rico in the control of an outbreak of rabies in dogs, pigs, and mongooses, and before that, he had studied an enzootic of rabies among vampire bats in Mexico.

Veterinary Personnel Changes.—The following changes in the force of veterinarians in the U. S. Bureau of Animal Industry are reported as of June 19, 1950, by Dr. W. A. DeVaughan, personnel officer.

RESIGNATIONS

Robert K. Altaker, Sacramento, Calif.
George J. Anderson, Austin, Minn.
Mansel O. Barnes, Olympia, Wash.
Leon J. Bonner, Montgomery, Ala.
Earl G. Boydston, Lansing, Mich.
J. Alan Bradbury, Kansas City, Kan.
Nathan D. Bradshaw, Chicago, Ill.
Zackie H. Bridges, Oklahoma City, Okla.
Gabriel G. Calderin, San Juan, P. R.
Arthur S. Charles, New York, N. Y.
Harold K. Cohen, Davenport, Iowa.
Wm. L. Collins, Mexico City, Mex.
Clifton R. Covington, Fort Dodge, Iowa.
Arthur J. Currie, Madison, Wis.
Thomas L. Cuyton, Mexico City, Mex.
Carl A. Dahlquist, Jacksonville, Fla.
Hugh F. Dailey, Mexico City, Mex.
Edward H. Dowdy, Lansing, Mich.
Kenneth J. Feldman, New York, N. Y.
Nathan Gelbart, Chicago, Ill.
Martin E. Goetz, Los Angeles, Calif.
Clinton W. Gray, Mexico City, Mex.
Ross M. Grey, Mexico City, Mex.
Linus J. Grilliot, Columbus, Ohio.
Morgan L. Hannahs, Waterloo, Iowa.
Charles C. Harman, Atlanta, Ga.
Byron D. Harris, Mexico City, Mex.
Frank C. Harris, Jacksonville, Fla.
James B. Henderson, Mexico City, Mex.
Charles P. Hill, Mexico City, Mex.
Richard Hodges, Fort Worth, Texas.
Pierce A. Humble, Albuquerque, N. M.
Frank W. Kingsbury, Springfield, Mass.
Robert Learmonth, Jacksonville, Fla.
William T. Lightle, Phoenix, Ariz.
J. shua A. Lynn, San Francisco, Calif.
William F. McKellar, Buffalo, N. Y.
N. L. Tim McLeod, Fort Worth, Texas.
Lyle K. Miller, Pittsburgh, Pa.
George W. Moreland, Mexico City, Mex.
William C. Moughon, Mexico City, Mex.
Wayne S. O'Neal, St. Louis, Mo.
Walter S. Packer, Augusta, Maine.
Harold C. Reedy, Raleigh, N. Car.

Harry B. Reek, Baltimore, Md.
William Schwartz, Philadelphia, Pa.
Mrs. Dorothy Segal, Lansing, Mich.
Akin M. Simpson, Mexico City, Mex.
Frarie C. Smalley, Mexico City, Mex.
Marvin D. Stitt, Oklahoma City, Okla.
William H. Sutterby, Jacksonville, Fla.
Francis L. Thomas, Sioux City, Iowa.
Tiny S. Thompson, Mexico City, Mex.
John R. Tweed, Mexico City, Mex.
Lloyd F. Van Gorder, Augusta, Maine.
P. Gilbert Verville, Augusta, Maine.
Frederick B. Vincent, Augusta, Maine.
Donald E. Ward, Springfield, Ill.
Elwood E. Wedman, Topeka, Kan.
John H. Winter, Lansing, Mich.
James A. Zimmerman, Spokane, Wash.

RETIREMENTS

Albert P. Abbott, Columbus, Ohio.
Thomas J. Ahern, Hartford, Conn.
Edwin R. Bane, Topeka, Kan.
Ivan Lee Barstow, Denver, Colo.
Frank E. Blake, Hartford, Conn.
Oren A. Christianson, Madison, Wis.
Herbert C. Cram, Richmond, Va.
William L. Davis, Little Rock, Ark.
William H. Eberle, Jefferson City, Mo.
Edson L. Finley, Des Moines, Iowa.
Benjamin F. Gooch, South St. Joseph, Mo.
John W. Herman, Cincinnati, Ohio.
Harold E. Johnston, Des Moines, Iowa.
Lawrence P. Kirch, Indianapolis, Ind.
Earle L. Kittrell, Little Rock, Ark.
Francis A. McCarty, Madison, Wis.
Icel G. McChesney, San Francisco, Calif.
William V. McGroarty, Harrisburg, Pa.
Frank G. Miller, Salt Lake City, Utah.
Theodore Pickett, Kansas City, Kan.
Neil Plank, Pierre, S. Dak.
Frank D. Porter, Fort Worth, Texas.
William C. Smith, Milwaukee, Wis.
Richard E. Surring, Oklahoma City, Okla.
Raleigh M. Ward, Indianapolis, Ind.

TERMINATIONS

John P. Beck, Baltimore, Md.
Norman M. Borthwick, Albuquerque, N. M.
Bohdan Czechut, Omaha, Neb.
Gregory Czusak, Chicago, Ill.
Tadeusz M. Dubrawski, Los Angeles, Calif.
Howard W. Dunn, Mexico City, Mex.
Honorio C. Evangelista, San Francisco, Calif.
Kazimierz Furdyna, Chicago, Ill.
Wladyslaw J. Galecki, Los Angeles, Calif.
Laurel M. Hade, Mexico City, Mex.
William F. Hodam, Sioux City, Iowa.
Josef Ilkiw, Omaha, Neb.
Roman L. Jaciw, Piqua, Ohio.
Roman Jaskiw, Chicago, Ill.
Zenon Jurczynski, Baltimore, Md.

Wolodymyr T. Juzwiak, Kansas City, Kan.
 Maurice H. Knox, Omaha, Neb.
 Bohdan Kondra, Boston, Mass.
 Theodore Korecki, Reading, Pa.
 Peter H. Langer, Mexico City, Mex.
 Gregor Lozinski, Chicago, Ill.
 Wasyl Malynowskyj, Omaha, Neb.
 Frank Manelson, New York, N. Y.
 Miles J. McDermid, Mexico City, Mex.
 Henry R. McNally, Kansas City, Kan.
 Jaroslaw Melnyk, Chicago, Ill.
 Alfred W. Moller, St. Louis, Mo.
 Franc M. Naumyk, Dubuque, Iowa.
 Czeslaw Pawlowski, Chicago, Ill.
 Wasyl Petryna, Cleveland, Ohio.
 Myroslav Polotniak, Los Angeles, Calif.
 Paul Sencia, Chicago, Ill.
 Arnold Sonnenschein, Los Angeles, Calif.
 Wladimir Wacyk, Omaha, Neb.

DEATHS

Stanley C. Brouse, Dayton, Ohio.
 Benjamin G. Darling, Los Angeles, Calif.
 Frank B. Jones, Topeka, Kan.
 Ed P. Kleeman, South St. Joseph, Mo.
 Harold M. Lewis, Boston, Mass.
 John B. Riester, Indianapolis, Ind.
 Edwin S. Ring, Philadelphia, Pa.
 Harold M. Smith, Boston, Mass.

TRANSFERS

John M. Hejl from Omaha, Neb., to Washington, D. C.
 John B. Henly from Little Rock, Ark., to Beltsville, Md.
 Howard W. Johnson from Mexico City, Mex., to Washington, D. C.
 Walter D. McCormack from Kansas City, Kan., to Washington, D. C.
 George M. McGee from Mexico City, Mex., to Jacksonville, Fla.
 Lawrence O. Mott from Mexico City, Mex., to Washington, D. C.
 Haldor T. Mydland from Mexico City, Mex., to Topeka, Kan.
 William L. Pitt from Mexico City, Mex., to Beltsville, Md., and from Beltsville, Md., to Lincoln, Neb.
 Wiley B. Tanner from Topeka, Kan., to Mexico City, Mex.

APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X.

First Listing

BECKMAN, C. HERMAN
 4411 Chippewa St., St. Louis 16, Mo.
 D.V.M., Iowa State College, 1920.
 Voucher: J. L. Wells.

BENNETT, GEORGE R.
 2108 Potomac Ave., Pittsburg, Pa.
 D.V.M., Michigan State College, 1943.
 Voucher: R. C. Snyder.
 BUSH, NEILL E.
 905 9th St., Elkins, W. Va.
 D.V.M., New York State University, 1945.
 Voucher: H. K. Royer.
 COLLINS, WILBER G.
 Box 1232, Hanover, N.H.
 D.V.M., New York State Veterinary College, 1938.
 Voucher: F. E. Allen.
 CONNELL, JAY R.
 823 Laclede, Sheridan, Wyo.
 D.V.M., Colorado A. & M. College, 1949.
 Voucher: J. Browne.
 COXON, EARL N.
 Box 474, Wellesley, Ont.
 D.V.M., Ontario Veterinary College, 1941.
 Voucher: G. A. Edge.
 FAUKS, WILLIAM K.
 2910 N. W. 23rd, Oklahoma City, Okla.
 D.V.M., Colorado A. & M. College, 1944.
 Voucher: L. H. Moe.
 HILL, JAMES K.
 Tintonka, Iowa.
 D.V.M., Iowa State College, 1943.
 Voucher: F. B. Young.
 LARSON, EMIL V.
 Evansville, Minn.
 D.V.M., Iowa State College, 1933.
 Voucher: B. S. Pomeroy.
 MAHER, WALTER D.
 Fulda, Minn.
 D.V.M., Ontario Veterinary College, 1940.
 Voucher: B. S. Pomeroy.
 MILNE, FRANCIS J.
 639 Mathews St., Fort Collins, Colo.
 M.R.C.V.S., Royal Veterinary College, Edinburgh, Scotland, 1941.
 Voucher: J. W. Harrison.
 PEIGH, DONALD R.
 8256 S. Ashland Ave., Chicago, Ill.
 D.V.M., Michigan State College, 1949.
 Voucher: A. G. Misener.
 ROSS, JACK B.
 Meadowbrook Rd., Jackson, Miss.
 D.V.M., Texas A. & M. College, 1946.
 Voucher: J. A. Randle.
 SAITO, ROY
 Leduc, Alta.
 D.V.M., Ontario Veterinary College, 1949.
 Voucher: J. C. Wainwright.
 SELLE, OMAR O.
 Marshfield, Mo.
 V.S., Ontario Veterinary College, 1902.
 Voucher: J. L. Wells.
 SERLING, MAURICE E.
 6 Weaver St., Larchmont, N.Y.
 D.V.M., New York State Veterinary College, 1934.
 Voucher: J. J. Regan.

SMITH, CHARLES L.

707 W. Clinton St., Huntsville, Ala.
D.V.M., Alabama Polytechnic Institute, 1949.
Voucher: I. S. McAdory.

SMITH, FRED H.

R.F.D. 13, Boulder Crest Dr., Atlanta, Ga.
D.V.M., Alabama Polytechnic Institute, 1949.
Voucher: C. C. Rife.

STEWART, WYNON C.

Tylertown, Miss.
D.V.M., Texas A. & M. College, 1949.
Voucher: S. A. Cox.

THOMAS, JULIAN H.

Box 658, 795 S. Main St., Lockhart, Texas.
D.V.M., Texas A. & M. College, 1943.
Voucher: E. A. Grist.

Second Listing

BALTHASER, HARRY B., 4907 Market St., Philadelphia 39, Pa.

BENDER, HARRY E., 507 E. Main St., Lititz, Pa.

BROWN, JAMES R., 900 S. Horry St., Madison, Fla.

CHAMLEY, JOHN A., Box 217, Wakonda, S. Dak.

COOK, MAJOR VICTOR J., USAF, V.C., Box 14, Goodfellow Air Force Base, Texas.

HEMPY, CAPT. JACK H., USAF, V.C., 5700 Med. Sq., Albrook Air Force Base, Canal Zone.

HIETT, ALLEN A., R.R. 11, Box 177, Mt., Healthy, Cincinnati, Ohio.

JEROME, NEWELL G., 433 S. Division St., Blytheville, Ark.

KNOX, MELVILLE R., 499 8th St., E., Owen Sound, Ont.

LODMORE, ROBERT E., 96 S. State St., Lowville, N. Y.

LUDWIG, HERMAN T., 303 Livestock Exchange Bldg., Herr's Island, Pittsburgh 22, Pa.

MCCOY, TURNEY, 2454 Simpson St., Paris, Texas.

MARTORELL, ROGELIO A., San Nicolas 103, Havana, Cuba.

MECKSTROTH, CAPT. LESLIE E., V.C., 1124th A.S.U., Sta. Dispensary, Army Base, Boston, Mass.

NADLER, HAROLD E., 21 Clinton St., Seneca Falls, N. Y.

POWELL, MAJOR JOHN J., V.C., Vet. Sec. Service Operations, APO 846, c/o Postmaster, New York, N. Y.

RADER, CAPT. WILLIAM A., JR., USAF, V.C., Rapid City Air Force Base, Weaver, S. Dak.

SACHS, HYMAN J., 68-12 110 St., Forest Hills, N. Y.

SHIRER, CAPT. WILLIAM H., V.C., Veterinary Dispensary, Ft. McPherson, Ga.

TANNER, WALLACE J., 2117 4th St., N., St. Petersburg, Fla.

WILSON, LOUIS, 2406 E. Erie Blvd., Syracuse 3, N. Y.

**1950 Graduate Applicants
First Listing**

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Iowa State College

HOLLEN, JAMES M., D.V.M.,
New London, Iowa.

Vouchers: E. A. Benbrook and F. K. Ramsey.

Ontario Veterinary College

BRYDGES, WILLIAM G. J., D.V.M.,

I.O.O.F. Hall Bldg., Neepawa, Man.

Vouchers: R. L. MacNabb and T. L. Jones.

CAMPBELL, DUNCAN, D.V.M.,

King, Ont.

Vouchers: R. A. McIntosh and T. L. Jones.

State College of Washington

STIRLING, CHARLES O., D.V.M.,

5112 S. East 74th, Portland 6, Ore.

Vouchers: J. E. McCoy and R. L. Ott.

Second Listing**Alabama Polytechnic Institute**

BOX, JOHN L., D.V.M., 2378 Spottswood Ave., Memphis, Tenn.

BURNETT, STUART E., D.V.M., St. Mary's Rd., Columbus, Ga.

JONES, CECIL R., D.V.M., P.O. Box 18, Hardinsburg, Ky.

MCCAIN, CHARLES S., D.V.M., P.O. Box 11, Nashville, Ill.

Iowa State College

ALLENSTEIN, LELAND C., D.V.M., 1001 Main St., Whitewater, Wis.

ANDERSON, SILAS R., D.V.M., Box 11, Newark, Ill.

CAMPBELL, WALTER W., D.V.M., 401 W. 14th St., Chicago Heights, Ill.

CHUDOMELKA, HERSCHEL J., D.V.M., Rt. 2, Ozark, Mo.

COWLES, ROLLIN J., D.V.M., 1841 Lucas Ave., Burlington, Iowa.

CRAWFORD, DONALD H., D.V.M., 3033 Ansborough Ave., Waterloo, Iowa.

GUBSER, EDWARD A., D.V.M., Adel, Iowa.

HERRMANN, WARREN W., D.V.M., Sibley, Iowa.

JACOBSON, LESLIE T., D.V.M., Winthrop, Minn.

KILIAN, JOHN G., JR., D.V.M., P.O. Box 80, Stacyville, Iowa.

LUYMES, GLENN I., D.V.M., 703 N. Center Ave., Galva, Ill.
 MACHEAK, MERLIN E., D.V.M., R.F.D. 2, Ft. Dodge, Iowa.
 PROW, CLAUDE J., D.V.M., 19 4th N.W., Mason City, Iowa.
 POPPEN, DONALD W., D.V.M., 705 7th St., Sheldon, Iowa.
 RIEPMA, ANTHONY W., D.V.M., 419 6th Ave., W., Spencer, Iowa.
 SCHLEGEL, BEN F., D.V.M., Pulaski, Iowa.
 TYLER, WARREN E., D.V.M., Lescomb, Iowa.
 WEATHERLY, THOMAS R., D.V.M., Oakland, Neb.
 WINTERFIELD, ROLAND W., D.V.M., 5940 Ashcroft Ave., S., Minneapolis, Minn.

Colorado A. & M. College

COLMEY, DAVID G., D.V.M., 115 W. Geysler, Livingston, Mont.
 TINSMAN, CARL S., D.V.M., 2200 S. Colorado Blvd., Denver, Colo.

Ohio State University

ANDERSON, GEORGE R., D.V.M., 54 Webster Pk. Ave., Columbus, Ohio.

Ontario Veterinary College

CLAPP, JAMES B., D.V.M., 9 Bridge St., Picton, Ont.
 CUMMINS, DONALD W., D.V.M., 400 Mary St., Pembroke, Ont.
 DIEHL, WALLACE G., D.V.M., 7139 S. Parnell, Chicago 21, Ill.
 GODWIN, ALFRED H., D.V.M., Kamsack, Sask.
 HARVEY, ROBERT O., D.V.M., Steinbach, Man.
 HILL, DESMOND H., D.V.M., c/o Rhodesia House, Strand, London, Eng.
 L'HEUREUX, MAURICE P., D.V.M., 5355 Maplewood Ave., Detroit 4, Mich.
 PECK, JOSEPH G., D.V.M., 3631 N. Elston Ave., Chicago 21, Ill.
 PURDY, JAMES G., D.V.M., 20 Eddy St., Amherst, N.S.
 SMITH, ALTON N., D.V.M., Cupids, Newfoundland.
 SMITH, DOUGLAS C., D.V.M., 140 Brock St., Peterborough, Ont.
 TAGGART, ROBERT J., D.V.M., Canora, Sask.
 THOMSON, JAMES R., D.V.M., 15771 Mack Ave., Detroit 24, Mich.

State College of Washington

DEAVER, JAMES M., D.V.M., 141 W. 82nd St., Seattle, Wash.
 WEDAM, FRED J., D.V.M., Rt. 2, Box 492, Chehalis, Wash.

AMONG THE STATES AND PROVINCES

Alabama

Dr. Venable Retires.—Dr. Joseph W. Venable (CVC '15), Dothan, Ala., who retired June

30, 1950, from the U. S. Bureau of Animal Industry, can look back on "thirty-one years, two months, and twenty-four days" of active practice. He worked on the meat inspection program, hog cholera control, foot-and-mouth disease control, and during the drought in the dust bowl, he helped buy cattle and transfer them to states that could feed them. Dr. Venable, after visiting a son and a new grandson, will spend his time with his garden and fruit trees and plans to complete his wood-working shop.

S/E. E. WILLIAMS, *Secretary.*

Arizona

Maricopa County Association.—On July 11, 1950, Dr. and Mrs. Keith O. Lassen of Mesa were host and hostess to 30 veterinarians and their wives at a dinner meeting of the Maricopa County Veterinary Association at the Maricopa Inn in Mesa.

Dr. Bruce Crow, M.D., radiologist, gave an informative talk on the value of x-ray protection. The possible dangers of no protection of those engaged in radiography were emphasized.

Dr. C. J. Prchal was elected secretary, and the following were appointed members of a public relations committee: Drs. Charles A. White, chairman; F. H. Olvey, Phoenix; and C. J. Prchal.

Several new members were welcomed into the association.

S/C. J. PRCHAL, *Secretary.*

California

North San Joaquin Valley Association.—New officers of the North San Joaquin Valley Veterinary Medical Association are Drs. Leslie Burns, Sonoma, president; F. W. Koebel, Gustine, vice-president; and V. E. Graff, Oakdale, secretary-treasurer.

S/V. E. GRAFF, *Secretary.*

Sterility Conference.—The sixth annual conference of the American Society for the Study of Sterility met in San Francisco on June 24-25, 1950. Mamalian and gynecic aspects of infertility, basic studies on the role of the male in sterility, and standards and therapy in the male were discussed. One veterinarian appeared on the program—Dr. Nils Lagerlöf, of Sweden, spoke on "Investigations on Hereditary Forms of Sterility in Swedish Cattle Breeding."

S/WALTER W. WILLIAMS, *Secretary.*

State Meat Inspection.—At the close of 1949, 284 establishments were operating under supervision of California's Bureau of Meat Inspection, headed by Dr. G. A. Boyd, of Sacramento. In addition, 107 establishments were operating under the three approved municipal inspection systems of San Francisco, Oakland, and Sac-

ramento. Slaughter under state and approved municipal inspection was 3 per cent under 1948, while meat processing increased 10 per cent.

Los Angeles Q Fever Situation.—Studies of *Coxiella burnetii* infection in the Los Angeles area by Bell, Beck, and Huebner (*J. Am. M. A.*, March 25, 1950) confirm the original report to the effect that the disease is predominantly of bovine origin. Contact with dairy cows and calves, the drinking of raw milk, and the handling of hides accounted for enough of the cases investigated to justify that conclusion. These investigators report that about 50,000 cases of Q fever have occurred in the area during recent years, including the obvious cases not recognized as such.

Asiatic Form of Avian Pneumoencephalitis.—An outbreak of the virulent, Asiatic form of avian pneumoencephalitis (Newcastle disease) was traced to an air shipment of game birds from Hong Kong, China, that reached San Francisco the latter part of March, 1950. Four imported species—pheasant, quail, duck, and partridge—were involved in the outbreak, which was first detected on an importer's game farm in Contra Costa County. Later, the disease was found on four other California farms which received part of the shipment.

According to a joint announcement from the California State Division of Animal Industry and the U.S. BAI, the outbreak was promptly brought under control by slaughter of infected and exposed birds, and it is believed that the disease has been eradicated. A quarantine was imposed on all five farms involved and on farms in four other states which received shipments of possibly exposed birds from the importer's premises.

All partridges were dead on arrival in San Francisco, and many of the other birds died within a few days after they reached the importer's farm. A flock of his home-raised Bantams also became infected, with only 1 of 40 surviving. Diagnosis of the Asiatic form, which is deadlier than that now established in the United States, was made by the University of California.

Colorado

Veterinary Public Health Program Expanding.—Inspection of meat and food products of animal origin is only one, but an important, part of the public health veterinary medical program in Colorado. Tracing diseased animals back to the farms and avoiding repetitious losses is another phase of the program. Vaccination programs to control rabies, brucellosis, equine encephalomyelitis, and other diseases are carried on for the protection of the public.

In all of this work, state and local health

departments, practicing veterinarians, and the extension service work cooperatively to control the diseases transmissible from animals to man.

Connecticut

State Association.—The annual outing of the Connecticut Veterinary Medical Association was held on Aug. 2, 1950, at Restland Farm, Northford. Approximately 75 veterinarians, their wives and guests enjoyed an afternoon of baseball, horseshoe pitching, and other sports. The highlight of the afternoon was the baseball game between the "Dodgers" and "Giants," captained by Drs. E. H. Patchen and John P. McIntosh, respectively. After the game, an old-fashioned shore dinner with clam chowder and all the "fixings" was served.

S/NIEL W. PIEPER, *Resident Secretary.*

District of Columbia

District Association.—The District of Columbia Veterinary Medical Association held its third quarterly meeting for 1950 in the Mayflower Hotel on July 11. The program consisted of the following color sound motion pictures: "Gelfoam in Human Surgery," courtesy The Upjohn Company; "Schistosomiasis" and "Necropsy of an Elephant," both from the Film Library, Armed Forces Institute of Pathology.

S/C. H. THOMPSON, JR., *Secretary.*

Georgia

South Georgia Association.—The South Georgia Veterinary Association met at the Radium Springs Hotel on Aug. 6, 1950, with 32 members and guests present, 23 of whom were accompanied by their wives.

Dr. W. D. Martin, Jr., Albany, discussed "Some Internal Parasites of Small Animals and Their Treatment." A lively and interesting discussion followed that resulted in the exchange of many good ideas. A panel on "Cattle Diseases" consisted of Drs. J. R. Clanton, Thomasville; T. C. Ross, McRae; S. Shepard, Moultrie; and W. L. Sippel, Tifton. Questions from the floor dealt with coccidiosis, Aujeszky's disease, pink eye, phenothiazine treatment, intoxication from ingestion of the placenta, insecticide poisoning, anaplasmosis, and other conditions.

A delicious smorgasbord supper was enjoyed by all, Dr. Guy Mooreman eating more than anyone else present.

S/W. L. SIPPEL, *Secretary.*

Idaho

Northwestern States Brucellosis Conference.—The Northwestern States Brucellosis Conference was held on Sept. 7-8, 1950, at the Hotel Boise in Boise. Dr. Peter MacKintosh, Yakima, Wash., represented the AVMA at this conference.

Illinois

Animals in Television.—Besides the shootin' cowhands of the overdone Westerns, the polo games, the race tracks, and the circuses, the Chicago television stations give three educational programs designed to institute better understanding of the habits, care, and hygiene of the animals of all kinds that man has taken into his custody to satisfy his needs or his whims. These are:

"Zoo Parade" by R. Marlin Perkins and Jim Hurlbut of the Lincoln Park Zoo on Channel 5, who exhibit and describe the care of rare captive creatures.

"Pet Shop" by Gail and Gay Compton, local celebrities of the pet-animal industry on Channel 5, who give buyers useful hints on purchase, training, nutrition, and general care of the various pets of the household.

"Animal Clinic" by Dr. W. A. Young, director of the Anti-Cruelty Society and treasurer of the AVMA, on Channel 7, who gives the green light to common sense in the medical and surgical treatment of the dogs and cats and birds of the family circle. Dr. Young is assisted by his charming daughter Loie.

• • •
New Biting-Dog Law.—Section 1 of a law passed by the last General Assembly reads:

If a dog without provocation attacks or injures any person who is peacefully conducting himself in any place where he may lawfully be, the owner of the dog is liable in damages to the person so attacked or injured to the full amount of the injury sustained. The term "owner" includes anyone harboring or keeping a dog. The term "dog" includes both male and female of the canine species.

The Letter Carriers Union is said to have instigated the passage of the new act.

Indiana

Board of Directors.—On July 23, the Indiana Veterinary Medical Association Board of Directors met in Indianapolis. Those present at the meeting were Drs. C. Harvey Smith, president; G. R. Oldham, president-elect; W. W. Garverick, secretary-treasurer; E. W. Spieth, chairman of the Board; Roe King, L. E. Andres, F. H. Brown, L. O. Fish, Paul Wallace, H. D. Carter, and W. S. Weisner.

s/J. L. KIXMILLER, Resident Secretary.

• • •
Michiana Association.—Members of the Michiana Veterinary Medical Association attended a dinner meeting at the Hotel Rumley, LaPorte, Ind., June 8, 1950. Dr. J. G. Hardenbergh, executive secretary of the AVMA, was the guest speaker of the evening. His subject was "The National Organization and How It Functions." Other distinguished guests were

Dr. C. Harvey Smith, president of the state association, and Mrs. Smith, Dr. C. L. Miller, president of the Illinois association, and Mrs. C. L. Miller, secretary to the Women's Auxiliary to the AVMA.

s/R. W. WORLEY, Secretary.

• • •
Ninth District Association.—On June 28, the Indiana Ninth District Veterinary Medical Association met at the Country Club in Seymour. Dr. V. L. Tharp, director of clinics at Ohio State University School of Veterinary Medicine, spoke on "Mycotic Stomatitis and Foot-and-Mouth Disease," with illustrations.

Mrs. H. B. Crawford was hostess to the women, who played bridge after a delicious dinner.

s/J. L. KIXMILLER, Resident Secretary.

• • •
Tenth District Association.—Members of the Tenth District Veterinary Medical Association met in Greenfield on June 22 to hear Dr. W. M. Coffee, LaCenter, Ky., president-elect of the AVMA, speak on "General Practice," with illustrations.

The veterinarians, and their wives, of Hancock County acted as hosts. An orchestra furnished music during the dinner and was followed by entertainment by Dr. G. R. Oldham and his Kokomo Ko-Ko-Notes quartet.

s/J. L. KIXMILLER, Resident Secretary.

• • •
Wabash Valley Association.—The Wabash Valley Veterinary Medical Association met at the Colonial Hotel on Lake Manitau in Rochester. Dr. T. A. Sigler, Greencastle, told of his experiences during his years of practice. Dr. and Mrs. G. D. Haimbaugh, Rochester, and Dr. and Mrs. Paul Heinsen, Kewanna, were hosts.

s/J. L. KIXMILLER, Resident Secretary.

• • •
Extension Service in Public Health Work.—Although its projects are agricultural, the Extension Service directs its educational programs toward promoting the health of rural people, says Dean Harry Reed of that service of Purdue (*J. Am. M. A.*, April 1, 1950). The program touches sanitation, animal diseases harmful to man, nutrition, housing, and other problems related to human health.

Iowa

Brucellosis Among Veterinary Students.—A critical study of the veterinary students of Iowa State College (class of '49) revealed that 55 per cent reacted to either the opsonocytaphagic or agglutination test for brucellosis. Several had been clinical cases. All had been exposed to the infection in one way or another. The antigen used was a 24-hour live culture of strain 19.—*From The Veterinarian, Winter, 1950.*

Kentucky

State Association.—The Kentucky Veterinary Medical Association met in the Seelbach Hotel in Louisville, July 12-13, 1950, with approximately 100 veterinarians in attendance. The following program was presented.

Dr. Edward M. Lang, Jr., Louisville: "The Value of the Laboratory to the Practicing Veterinarian."

Dr. Clarence R. Cole, chairman, Department of Veterinary Pathology, The Ohio State University, Columbus: "Differential Diagnosis of X-Disease (Hyperkeratosis) in Cattle."

Mr. Samuel R. Guard, editor, *Breeder's Gazette*, Louisville: "Hog Cholera in the United States."

Dr. D. L. Proctor, Jr., Del-Tor Clinic, Lexington: "Standing Operation for the Reduction of Umbilical Hernia in the Horse."

Dr. John Miller, Clinton: "Observations on Swine Practice in Western Kentucky."

Dr. J. A. Winkler, Newport, was moderator of a panel discussion on "Diseases of Large Animals." Other panel members were Drs. Clarence Cole; E. R. Frank, Kansas State College, Manhattan; D. L. Proctor, Jr.; John Miller; Carl F. Gobert, Bardstown; Lee Evans, Butler; and E. L. Taylor, Georgetown.

Dr. H. E. Jensen, Jensen Animal Hospital, Cleveland, Ohio, showed films on rabies; pyometra; field test for strychnine; anal gland, cataract, and forminston operations; and ear trimming.

New officers of the association are Drs. J. K. Bushnell, Paris, president; L. L. McBride, Shelbyville, first vice-president; L. R. Wempe, Morganfield, second vice-president; E. L. Taylor, Georgetown, third vice-president; and Ross Brown, Lexington, secretary-treasurer.

s/ROSS BROWN, *Secretary*.

T. J. STEARNS, *Resident Secretary*.

Maine

State Association.—Fifty-two veterinarians and wives attended the meeting of the Maine Veterinary Medical Association at Sprucewold Lodge, Boothbay Harbor, on July 12, 1950.

At the business meeting, Dr. J. Frank Witter, Orono, was nominated for resident secretary of the AVMA for a two-year term. Dr. Chester L. Blakely, Lexington, Mass., was accepted as an honorary member. He has been a loyal member for fifty-one years. Dr. William G. Moore, Augusta, and Dr. Harold L. Chute, Orono, were accepted as new members.

After the dinner, Dr. Russell W. Pinfold, Brunswick, spoke on "Veterinary Medicine in the Hawaiian Islands," telling of his experiences as a practitioner there for five years. Much of the practice is contract work, and preventive medicine on large groups of animals is stressed much more than treatment of individual sick animals.

Several motion pictures of veterinary medical interest were shown.

s/S. D. MERRILL, *Secretary*.

Michigan

The Veterinary Practice Act.—Proposals for the amendment of the veterinary practice law passed in 1907, or forty-three years ago, were not favorably entertained at the annual (1949) meeting of Michigan Veterinary Medical Association, on the ground that revision of the law, which has served a useful purpose, might prove to be an invitation for the introduction of undesirable amendments unless the new bill were supported by all interests directly concerned and energetically pushed by the Association. Fear was expressed to the effect that licensure might be opened to laymen and farmers granted the right to vaccinate boys.

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Medical Research to Augment Humane Work.—A bill before the state legislature sponsored by the SPCA, amends the Stray Animal Act in such a way as to raise a probable additional \$600,000 per year for humane work among animals. Supported by 78 organizations (*J. Am. M. A.*, April, 1950) its passage seems assured. The object reportedly is to abolish, for all time by constructive legislation, the baroque programs of make-believe lovers of animals. The amendment is a long step toward nationwide protection of all animals on a scientific basis under the sponsorship of *bona fide* humane workers.

Minnesota

Twin City Association.—The Twin City Veterinary Medical Association met in the Veterinary Building at the University of Minnesota on July 13, 1950. Dr. E. L. Fitch, Minneapolis, discussed "Reduction of Luxation of the Femur," and Dr. Fred Driver, inspector-in-charge, field force of the Bureau of Animal Industry, St. Paul, spoke on "Brucellosis, Its Control and Eradication and the Use of the Ring Test."

Officers elected at the meeting are Drs. William Andberg, Anoka, president; Fred Gehrman, Minneapolis, first vice-president; George Keller, St. Paul, second vice-president; and B. S. Pomeroy, secretary-treasurer. Drs. C. E. Cotton, Minneapolis, and C. A. Mack and B. A. Pomeroy, St. Paul, were elected to honorary membership of the Association.

s/HENRY J. GRIFFITHS, *Resident Secretary*.

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Brucellosis Exhibit Shown at State Fair.—The AVMA exhibit on brucellosis drew a large, interested crowd when it was exhibited at the Minnesota State Fair on Aug. 26-Sept. 4, 1950. A member of the state Association was on hand to answer questions.

Regulations on Canine Importations.—Dr. Ralph L. West, secretary and executive officer of the Livestock Sanitary Board, reminds *Dog World* (Feb. p. 29) that it misquoted the Minnesota regulation pertaining to the importation of dogs. The published statement that a "health certificate must state no rabies has existed within an area of 50 miles of the point of shipment within six months" is erroneous. The law requires a health certificate showing freedom from symptoms of communicable disease and including the statement that "to the best of knowledge and belief the dog had not been exposed to rabies." Rabies vaccination is not required.

Missouri

Kansas City Association.—The Kansas City Veterinary Medical Association's annual outing took place at Dr. Joe Knappenberger's ranch 4 miles north of Olathe, August 5. Cheerfully, the magnanimous doctors shared their recreational program with the Women's Auxiliary by employing the women of Lenexa to provide the menu so that their wives could be as free as they to have a good time.

New York

Dr. Zeissig Appointed to PASB Staff.—Dr. Alexander Zeissig (CORN '26), Ithaca, N. Y., has been appointed to the staff of the Veterinary Public Health Section of the Pan American Sanitary Bureau, and his first assignment is as the Bureau's zoonosis consultant in southern South

America. He will be stationed in Montevideo, Uruguay.

Dr. Zeissig has been veterinary consultant in communicable diseases of the New York State Department of Health since 1945. The anti-rabies campaign in this state, under Dr. Zeissig's direction, has been an outstanding success and involved the coordinated effort of not only the health department, but also of the state conservation and agriculture departments. From 1926 to 1945, Dr. Zeissig was a member of the faculty of the New York State Veterinary College at Cornell University. In addition to his D.V.M. degree, he has also received his M.S. and Ph.D. degrees from Cornell University, and has studied at the University of Heidelberg, Germany, as a National Research Council fellow in medicine.

Westchester County Association.—On Aug. 10, 1950, members of the Westchester County Veterinary Medical Association met in White Plains to hear Dr. Mark L. Morris, New Brunswick, N. J., discuss "Nutrition as Applied to Animal Welfare." Dr. Morris said that during his early years of practice he was often baffled by the problem of effective supervision of a discharged patient's daily feeding. As a solution, he issued prepared rations to his clients. The success of this venture soon dictated the assignment of the process to a commercial enterprise. A portion of the proceeds goes to the Mark L. Morris Foundation for Animal Nutrition, which uses the funds to sponsor fellowships at the nation's veterinary colleges for research in nutrition.

Ohio

Conference Notes.—Approximately 300 veterinarians attended the nineteenth annual conference for veterinarians at The Ohio State University, June 14-16, 1950. The proceedings of this conference were published and distributed to those in attendance. The program was reported in the July JOURNAL.

General James A. McCallam was speaker at the banquet held in conjunction with the conference on June 14. He spoke on "National Security and the Veterinarian."

S/CHARLES D. DIESEM.

Ontario

Garden Party at Veterinary College.—The Ontario Veterinary Medical Association held a garden party on the West Lawn of the College July 18 which featured band music; broadcast talks over CJOY by Principal A. L. MacNabb, distinguished functionaries, and members; presentations of honorary life memberships to Dr. W. J. R. Fowler and Dr. L. C. Swan, honoraria to Mrs. W. J. R. Fowler and Mrs. A. E. Cameron; luncheon, formal dinner, and songs galore. Col. A. E. Cameron, in regula-



Dr. Alexander Zeissig

tion kilts, "piped" the speakers to the dais. Obviously, the party was an unforgettable event in the annals of Canadian veterinary medicine.

Oregon

Personal.—Mrs. Nell Berniece Harmon Reid, Albany, died July 26, 1950, at the age of 46. She is survived by her husband, Dr. G. F. Reid, Albany, and three sons: George R. (D.V.M.); Richard D., veterinary student at Washington State College; and Roger H. Mrs. Reid was active in the Women's Auxiliary to the Oregon Veterinary Medical Association, the Auxiliary to the AVMA, Eastern Star, Legion auxiliary, and the Episcopal Church.

Pennsylvania

Del-High Association.—The Del-High Veterinary Medical Association held its annual clambake on Aug. 3, 1950, at Flickinger's Grove near Bethlehem. Approximately 50 members and guests attended.

s/DONALD G. LEE, *Resident Secretary.*

Keystone Association.—On May 24, the Keystone Veterinary Medical Association met at the School of Veterinary Medicine in Philadelphia. Dr. William C. Glenney showed motion pictures of large and small animal clinical cases. Dr. Samuel F. Scheidy gave a report on proceedings of the Detroit meeting. The following officers were elected: Drs. William C. Glenney, Ardmore, president; Joseph Shute, Doylestown, vice-president; Leonard Kravitz, Philadelphia, treasurer and recording secretary; Dr. S. F. Scheidy, delegate to the Board of Trustees of the state association, and Dr. Alan Bachrach as alternate.

s/DONALD G. LEE, *Resident Secretary.*

Puerto Rico

PASB Assists During Rabies Outbreak.—Dr. Aurelio Malaga Alba, of the Veterinary Public Health Section of the Pan American Sanitary Bureau, Regional Office of the World Health Organization, was assigned to make on-the-spot observations of rabies cases and to collaborate with the insular health authorities during an outbreak of that disease in Puerto Rico.

The outbreak occurred at the end of March and was identified as rabies in the Rabies Laboratory of the Communicable Disease Center of the U.S. Public Health Service in Montgomery, Ala. Dr. Malaga assisted Dr. Ernest S. Tierkel, of the U.S.P.H.S., in giving a course in laboratory diagnosis of rabies. He also conducted a conference at Puerto Rico's Department of Agriculture on the problems related to rabies.

An intensive campaign was launched to round

up and vaccinate all dogs within a radius of 2 kilometers (about 1¼ mi.) from the centers of infection. Three thousand dogs were vaccinated and about 4,000 were destroyed in an effort to isolate the vector and prevent the spread of the disease. The last case was reported on May 12.

It is believed that the mongoose is one of the principal carriers of rabies, and a mongoose-trapping operation is under way on the island to determine its part in the recent outbreak.

Tennessee

Short Course.—The following program was presented at the short course for veterinarians at the University of Tennessee, Knoxville, Sept. 7-8, 1950.

Dr. M. G. Fincher, head, Department of Medicine, New York State Veterinary College, Cornell University, Ithaca: "Sterility of Cattle, Diagnosis and Treatment," "Problems in Cattle Practice," and "New York State's Plan for Mastitis Control."

Dr. F. E. Hull, head, Department of Animal Pathology, University of Kentucky, Lexington: "Icterus of Foals," "Problems of Sheep," and "Internal Parasites of Horses—Diagnosis, Treatment, and Control."

Dr. A. H. Quin, head, Professional Service Division, Jensen-Salsbery Laboratories, Inc., Kansas City, Mo.: "Recent Advances in Therapeutics in the Field of Biological and Pharmaceutical Products."

Dr. R. S. Sugg, dean, College of Veterinary Medicine, Alabama Polytechnic Institute, Auburn: "Progress Report on Regional Veterinary Education."

Dr. S. H. McNutt, professor of veterinary science, University of Wisconsin, Madison: "So-Called Baby Pig Disease—Diagnosis, Treatment, and Control," "Problems in Swine Practice," and "Atypical Hog Cholera."

Dr. C. E. Kord, state veterinarian, Nashville: "Progress Report on Brucellosis-Control Program."

Dr. J. L. West, associate pathologist, University of Tennessee, Knoxville: "Distemper in Dogs, Diagnosis, Treatment, and Control."

Dr. T. J. Young, Kingsport: "Leptospirosis—Diagnosis, Treatment, and Control."

s/J. H. McLEOD, *Dean.*

Texas

West-Central Association.—On July 8, 1950, the West-Central Texas Veterinary Association met in Abilene at the Abilene Veterinary Clinic, with 55 veterinarians in attendance. The program follows.

Dr. W. C. Banks, Texas A. & M. College, College Station: "Discussion of Newcastle Disease."

Dr. Hilton Smith, Texas A. & M. College: "Tumors in Veterinary Practice with Emphasis on Gross Pathology."

Dr. I. B. Boughton, Texas A. & M. College: "Sheep Practice and Discussion on the Texas A. & M. Veterinary School."

Dr. H. J. Ruebke, Veterinary Hygiene Department, Iowa State College, Ames: "Laboratory Procedures and Swine Practice."

Mr. J. E. Storey: "Laboratory Diagnosis of Heartworms."

Drs. W. G. Brock, Dallas, and Dan Roberts, Wichita Falls, were in charge of the large animal clinic which featured the following demonstrations: umbilical hernia in a horse; circumcision in an Aberdeen Angus bull; spaying a filly under 20 days of age; spaying a heifer under 20 days of age; tie cutting in show calves.

Drs. W. F. Juliff, San Angelo, was in charge of the small animal clinic. Demonstrations of tonsillectomy, oophorectomy, and castration in the dog; and open reduction of fracture were shown.

President Waymon G. Dubose, San Angelo, and Secretary C. L. Chapman, Abilene, will remain in office for another year.

S/LEON G. CLOUD, *Resident Secretary*.

Utah

State Officers.—New officers of the Utah State Veterinary Medical Association are Drs. C. L. Jones, Salt Lake City, president; E. A. Tugaw, Salt Lake City, vice-president; and Paul V. Christopherson, Pleasant Grove, secretary-treasurer. The meeting, June 8-9, 1950 (see July JOURNAL, p. 88), was held adjacent to the world-famous Cedar Brakes Park, Grand Canyon of the Colorado, and Bryce Canyon. The program was of good selection, well rendered, and enjoyed immensely.

S/HUGH HURST, *Resident Secretary*.

Virginia

State Association.—The 1950 summer meeting of the Virginia State Veterinary Medical Association was held in the Hotel Chamberlin at Old Point Comfort on July 17-19. After the address of President J. B. Woodworth, the following program was presented.

Dr. W. G. Venzke, chairman, Department of Veterinary Preventive Medicine, The Ohio State University, Columbus: "Hormone Therapy in Bovine Reproduction Problems" and "Streptomycin Therapy in Small Animal Practice."

Colonel Elbert DeCoursey, M.C., Armed Forces Institute of Pathology, Washington, D.C.: "The Pathologic Effects of Nuclear Explosion."

Dr. John D. Beck, School of Veterinary Medicine, University of Pennsylvania, Philadelphia: "X-Disease" (with illustrations).

Dr. W. L. Bendix, state Department of Agriculture: "A Report on the Brucellosis Control

Program." Dr. Bendix expressed satisfaction in the initial accomplishments on the part of the practitioners in the calfhood brucellosis vaccination program, but stated that accomplishments must be still greater.

The Honorable Parke C. Brinkley, commissioner, Department of Agriculture and Immigration, Richmond: "The Practicing Veterinarian, The Department of Agriculture, and the Livestock Business." This address left no doubt as to the wholesome relationship existing between the Department of Agriculture and the veterinary profession. Mr. Brinkley expressed his desire to put into effect a number of recommendations submitted by the Association to improve that working relationship and, thereby, enhance the veterinary service to the livestock and poultry industries.

Drs. Taylor P. Rowe and B. D. Phulpy, both of Richmond, demonstrated intramedullary nailing in femur fractures and local anesthesia in major surgical operations.

Entertainment included a two-hour boat trip through the Hampton Roads area, a barbecue, dinner, and dancing.

S/HARRY K. ROYER, *Secretary*.

Washington

Northwest Association.—The 1950 annual meeting of the Northwest Veterinary Medical Association was held in the Winthrop Hotel, Tacoma, Wash., July 17-19. The program follows.

Dr. John E. Craig, Seaside, Calif.: "The Diagnosis and Treatment of Intestinal Infections in Dogs and Cats" (with illustrations) and "Clinical Discussion on Diagnosis of Intestinal Infection in Dogs and Cats—Including Technique."

Dr. O. W. Schalm, Berkeley, Calif.: "Epizootiology, Diagnosis, and Control of *Streptococcus agalactiae* Mammary Infection" (with illustrations) and "Observations on Mastitis Caused by *Staphylococcus pyogenes* and *Pseudomonas aeruginosa*, and Coliform Organisms."

Dr. Jack R. Dinsmore, Portland, Ore.: "Diaphragmatic Hernia—Diagnosis and Repair in the Dog" (with illustrations).

Dr. I. W. Moynihan, Toronto, Ontario: "The Role of the Protozoan Parasite *Eimeria acervulina* in Diseases of the Domestic Chicken."

Dr. W. S. Gochenour, Indianapolis, Ind.: "Virus Diseases Other than Distemper in the Dog" and "Recent Advances in the Field of Biological Products."

Mr. G. F. R. Barton: "Practical Suggestions of Technique in Cattle Practice."

Dr. G. Dikmans, Beltsville, Md.: "Bovine Venereal Trichomoniasis—Its Diagnosis and Treatment."

Dr. Clifford Bjork, Portland, Ore.: "Encephalitis and the Practitioner."

Mr. Wendell Duncan: "Veterinary Jurisprudence."

Dr. John O. Schnautz, Corvallis, Ore.: "So-Called Nasal Granuloma in Oregon Cattle."

Dr. R. G. Cuthbert: "Hematoma of the Ear Flap in Dogs."

s/J. L. ELLIS, *Secretary*.

Conference on Diseases of Animals Communicable to Man.—The International Northwestern Conference on Diseases of Nature Communicable to Man met in Seattle on Aug. 23-25, 1950. Among the subjects covered at the meeting were Q fever, tularemia, rat bite fever, Newcastle disease, the encephalitides, Rocky Mountain spotted fever, schistosome dermatitis, and the deep-seated mycoses.

s/W. R. GIEDT, *M.D., Secretary*.

Fur Animal Research Laboratory.—The Fur Animal Disease Research Laboratory at the State College of Washington, Pullman, is one of the largest institutions of its kind in the Western Hemisphere, and one of the few in the world devoted entirely to research on diseases affecting fur animals. It is a cooperative project of the Bureau of Animal Industry, USDA, and the College of Veterinary Medicine of the College experiment station. Research covers nutrition, bacteria, parasites, and other diseases of fur animals. Dr. John R. Gorham is in charge of the laboratory. Members of the Department of Hygiene and Pathology of the College of Veterinary Medicine, and the Pathological Division, Bureau of Animal Industry, cooperate with the laboratory in its program.

—*American Fur Breeder*, May, 1950.

College of Veterinary Medicine Now a Separate Unit.—For the past several years, the College of Veterinary Medicine has been under the Institute of Agricultural Sciences, but on June 15, 1950, it was made a professional unit, thereby having the dean of the College directly responsible to the president of the State College. A resolution requesting this change was forwarded to the Board of Regents from the meeting of the Northwest Veterinary Medical Association in Victoria in 1949.

West Virginia

Bill Introduced to Create State Veterinarian Office.—The West Virginia Veterinary Medical Association expects to have a bill introduced in the 1951 session of the legislature making some changes in the act which was passed in the 1915 session, and revised in 1931. Among the items in the new bill is provision for an office of state veterinarian, for which there is no statute at the present.

The control of contagious and infectious dis-

eases comes under the Department of Agriculture—the commissioner may adopt such rules and regulations, as he deems fit, and call on the consulting veterinarians, who are graduates, to help enforce such rules and regulations as have been adopted.

s/S. E. HERSHEY.

Floods Damage Veterinarians' Property.—Drs. I. N. Horton, West Union, and Carl E. John, Weston, lost most of their household goods and suffered considerable loss in equipment and drugs from flash floods through the central part of the state during June.

s/S. E. HERSHEY.

Wisconsin

Southeastern Association.—Dr. S. H. McNutt discussed "Swine Problems and Nutrition" at the July 20 meeting of the Southeastern Wisconsin Veterinary Medical Association in West Bend.

s/ROBERT CURTIS, *Secretary*.

Milwaukee, Southeastern, and Rock Valley Associations.—On June 7, the Milwaukee, Southeastern Wisconsin, and Rock Valley veterinary medical associations met at the Avalon Hotel in Waukesha. Dr. Rolland Anderson, Elkhorn, spoke on "Large Animal Practice"; Dr. R. T. Firewood, Wilmette, Ill., discussed "Animal Hospitals"; and Dr. O. Norling-Christensen, Chicago, discussed professional activities.

s/R. CURTIS, *Secretary, Southeastern Association*.
K. NICHOLSON, *Secretary, Milwaukee Association*.

FOREIGN NEWS

France

Death of a Worthy Colleague.—Brigadier General D. Brocq-Rousseau (Alfort '91), who took a leading part in forming the veterinary service of the American Expeditionary Force of World War I, died at his home in Paris Jan. 21, 1950. With the rank of major, he was the senior French member of the Franco-American Veterinary Liaison Mission which was charged with developing a competent veterinary service on the Western Front. He was a man of rare intelligence and scientific ability, who had spent all of his professional life in the military service and in key assignments, among which was chief of the army veterinary research laboratory and of the botanical laboratory of the Nancy faculty of sciences. His books and his communications to scientific societies (veterinary medicine, medicine, comparative pathology, biology, hygiene, botany) were constant, numerous, and of the upper brackets, reflecting a profound knowledge of biology and chemistry plus the infinitely fine disciplines of the research laboratory and clinic.

Veterinary officers of the AEF, in particular, will join in honoring the memory of a serious-minded officer whose wise counsel helped to develop a competent veterinary service for our troops abroad in 1918.

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L'Office International des Epizooties.—This is an international livestock sanitary society maintained to develop uniform regulations and understandings on the interchange of domestic animals among the principal countries of the world. Its headquarters are in Paris where it was founded following World War I by Prof. Ch. Laclainche whose recent retirement brought Prof. Gaston Ramon, former director of the Pasteur Institute, to the presidency. Official representatives of 50 countries comprise the membership. Four of these countries are of the Western Hemisphere: Mexico, Peru, Venezuela, and Argentina. Its function, like that of the U.S. Livestock Sanitary Association, is to remove obstacles due to conflicting laws of different political areas (states, provinces, countries).

Germany

Dogs Not Transitive.—Impressions that devotion to and interest in dogs decline with food shortage are not well founded. The annual dog show of Berlin in June, according to an NBC broadcast, was a notable event of the K-9 field. All of the principal breeds of household, gun, and utility dogs were exhibited to enthusiastic crowds. Intramural Germany is still in good hands—the German people.

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Tuberculosis.—A law prohibits tuberculous persons from caring for tuberculosis-free cows.—*Rev. Vet. Venezuela, 1949.*

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Bovine Tuberculosis.—In Upper Bavaria, 2,882 animals were tuberculin tested. Of these, 537 (25%) gave positive reactions. Results of testing in other areas reported are somewhat higher in percentage of reactors: Oberfranken, 34 per cent; and Schwaben, 20 to 34 per cent.

This high rate of reaction occurs in spite of failure to observe external evidence of infection. Substantiating evidence is seen, however, in the fact that most of the "sudden death cases" prove to be tuberculous.

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Artificial Insemination.—At a meeting of veterinarians at Chiemgau, the following decisions were made: (1) Artificial insemination may be performed only by a veterinary surgeon; (2) the veterinary surgeons agree not to make additional charges for this service; (3) semen for AI must be collected at a federal insemination station; (4) on premises and in breeding plants where cases of contagious disease exist, only artificial inseminations will be permitted.

Great Britain

Plea for Draft Horses.—It appears to be dawning upon the British people that further decline in the use of farm horses would court disaster. Says the Clydesdale Horse Society, "Entire reliance on mechanized power is neither in the interest of agriculture nor of the nation." The question is being seriously discussed by the Ministry of Agriculture and Fisheries.—*Excerpt from the Veterinary Record.*

Greece

Cause or Effect.—Says an American-born Greek on his return from a visit to cousins and aunts in the environs of Athens, "The livestock industry is backward and there are no veterinary colleges in Greece." In the *British Journal of the Royal Army Veterinary Corps*, we read: "It has been necessary (in Greece) to train its military veterinary surgeons in Italy, France, Belgium or Hungary. They are attached to brigades and rank as second lieutenants. Sometimes one finds a qualified man serving as a private." These two current reports are, at least, a lesson on socio-political stature in this civilization—on which is the cause and which is the effect in the face of the known relationship of man and his animals.

Greenland

Trichinosis in Dogs.—Scientists of the School of Hygiene, University of Toronto, have reported that 70 per cent of dogs in Greenland are infected with *Trichina spiralis*. The high incidence of trichinosis in the sledge dogs of Arctic regions has long been reported by the Royal Canadian Mounted Police. The source of the infection has not been established. Similar reports have come from Newfoundland, Spitzbergen, and Alaska.—*From Canadian Journal of Public Health.*

Holland

Occupational Diseases of Veterinarians.—*Erysipelothrix rhusiopathiae* infection (231 cases) topped the list of occupational diseases among 641 veterinarians in Holland; accidental inoculation with virulent culture during immunization of pigs accounted for the majority of the cases. Four practitioners reported that they had become infected with skin tuberculosis of bovine origin while inoculating cattle with BCG vaccine. Six claimed to have contracted foot-and-mouth disease. General infection with *Brucella* was reported by 15, and *Brucella* allergy was recorded in 186 cases. Almost all of 103 reported cases of ringworm were traced to cattle.—*Refuah Vet., 5, Special Edition.*

Italy

Equine Brucellosis.—Brucellosis of horses is

relatively frequent in the valley of the Po, according to Bianchi (*Proflassi*, 21, 1949). It strikes geldings more often than mares and the susceptibility appears to increase with age. Though the author was not able to demonstrate the presence of the specific organism in the articular lesions usually attributed to *Brucella* infection, nor the presence of agglutinating antibodies to animals affected with more or less grave suppurations, positive agglutination was commonly observed in perfectly healthy subjects.

Jamaica

Rabies Conference.—On Aug. 28-30, 1950, the Pan American Sanitary Bureau sponsored a rabies conference at Kingston. The purpose of the conference was (1) to review the present rabies situation and study the control and quarantine measures now in effect; (2) exchange information on latest techniques of diagnosis, control, and eradication; (3) make recommendations for concerted antirabies measures among the governments in the Caribbean area. Representatives attended from Cuba, Dominican Republic, Haiti, Puerto Rico, Guadeloupe, Martinique, the Bahamas, Barbados, Leeward Islands, Windward Island, Trinidad, and the Virgin Islands.

Dr. Benjamin D. Blood, chief of the Veterinary Public Health Section of the Bureau, was in charge of the Bureau's activities.

Japan

Streptomycin for Animal Disease Research.—Japanese veterinarians are getting their first opportunity to use streptomycin for research on animal diseases. General MacArthur's headquarters has allotted livestock sanitary officials 366 Gm. of contraband streptomycin for trials on purebred calves that react to the tuberculin test, and for studying its effect on swine erysipelas.

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Fur Farming.—Fear among American fur farmers that Japan would become a large competitor was dispelled by Ford Wilkie of the U.S. Fish and Wildlife Service, whose eleven-month survey in the Island showed that fox farming was of minor importance and experiences with other animals have not been successful. The liberation of blue foxes on certain islands as was formerly done in Alaska was abortive. There will be no immediate deluge of furs from Japan, the investigation showed.

Mexico

PASB Assists in Production of Rabies Vaccine.—Technical assistance in the production of vaccine to combat rabies in the treatment of human beings is one of the services rendered by the Pan American Sanitary Bureau to the health

authorities of Mexico in the rabies control program along the United States-Mexican border.

Poland

Dourine.—A grave outward expression of the hazards of war is the present nation-wide incidence of dourine brought in by the German military operations of 1939. Although dourine-free since its independence following World War I, the disease was widely dispersed during the German occupation. Again, a vigorous campaign against this equine plague is under way. The fight comports serologic examination of mares and stallions, isolation of the sick, and killing of the badly affected. Ciuca's 914 is regarded the best medicinal treatment. Penicillin was found worthless.—From the *Annals of the University Marie Curie, Lublin*, 1949.

Scotland

Canicola Fever.—A survey of leptospiral infections of the dog and man in Glasgow (*Lancet*, July, 1948) largely acquits the dog of transmitting the disease. Of the dogs examined, 40 per cent were carriers of *Leptospira canicola*, and yet in the last fourteen years there were fewer than 100 cases of human leptospirosis diagnosed by the physicians of that city. The survey also disqualifies the term "canicola fever" as the name of the human infection since *L. canicola* rarely, if ever, infects man with a clinically recognizable ailment. In short, *L. icterohaemorrhagiae*, the specific agent of human leptospirosis, is not of canine origin. Waters contaminated by urine of dogs and rats are sources of both organisms. Though little is known about the portal of entrance of *L. canicola* in dogs, there is general agreement that *L. icterohaemorrhagiae* infects man via the conjunctivae and/or the tonsils.

Tripoli

Foot-and-Mouth Disease Outbreak.—An epizootic of mild foot-and-mouth disease has broken out at the Administrative Experimental Farm outside Tripoli city, where 20 of 40 cows are affected. The report comes from the chief veterinary officer, British Administration of Tripolitania, who reports no other cases and believes that the outbreak has been localized on the one farm.

Venezuela

Paralytic Rabies.—Paralytic rabies, differing from classical rabies in not having a furious form, is a common disease of farm ruminants and horses, in this country. Dogs and swine are exempt except to experimental, intracerebral inoculations. The disease was first described in Brazil in 1911 but is now observed in all of the South American republics. First recognized in Venezuelan cattle in 1938, visitations now occur throughout the cattle-raising

industry. The infection is spread by the vampire bat, *Desmodus rotundus murinus*, which has become famous as a reservoir of rabies virus on this continent. Investigations of ectoparasites as carriers were negative. The period of incubation ranges from eight to forty days. Paralysis is the first clinical evidence. Death occurs in four to six days after its appearance. Peracute cases die in twenty-four hours. The mortality is 100 per cent. Extensive antirabic vaccination of all the animals in affected regions stops the enzootic outbreaks. The postmortem lesions coincide with those of classical rabies, except that the inclusion bodies (Negri) in the brain cells are somewhat smaller.

Virgin Islands

Dr. Von Decken-Luers Only Veterinarian in Islands.—The virgin Islands are made up of three small islands, the largest of which is only 24 miles long. Dr. Rikki Von Decken-Luers (COR '39) is the only veterinarian in the territory and her duties as government veterinarian include work on all three islands. She also conducts a small private practice. The majority of the work is with cattle, cross bred senegalese and zebu types which are range-bred and wild, but Dr. Von Decken-Luers says that she finds the work fascinating and, under the primitive conditions there, a very definite challenge. Her chief mode of travel is on donkey-back.

VETERINARY MILITARY SERVICE

Air Force Officers Assigned to New Stations.

—The following officers were assigned to new stations: Colonel James C. Barta, from the Office of The Surgeon General, U.S. Air Force, Washington, D.C., to MacDill Air Force Base, Fla.; Major Frederick Weil, who was on duty with the Army in Okinawa, to Mather Air Force Base, Calif.; Major James McIntyre, from Scott Air Force Base, Ill., to Francis E. Warren Air Force Base, Wyo.; Major Robert K. Nelson, Langley Air Force Base, Va., to Ramey Air Force Base, Puerto Rico; Capt. William Rader, who was on duty with the Army at Percy Jones General Hospital, Battle Creek, Mich., to Rapid City Air Force Base, S. Dak.; Capt. Carl Wendell, from Wheelus Field Tripoli, Libya, to Chanute Air Force Base, Ill.

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Officers Assigned to Active Duty.—The following officers were recently commissioned in the U.S. Air Force Reserve and assigned to active duty as follows: Lt. Robert L. Brown, Stanton, Va., to Langley Air Force Base, Va.; Lt. Clarence A. Delli Quadri, Pueblo, Colo., to Offutt Air Force Base, Neb.; Lt. William Bilderbeck, Fort Worth, Texas, to Andrews Air Force Base, Washington, D.C.; Lt. Jack D.

Douglas, Bay City, Ore., to Walker Air Force Base, N. M.; and Lt. Wilman W. Ivy, White-land, Texas, to Edwards Air Force Base, Calif.

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Major Mace Elected to Scientific Societies.—Major Don L. Mace, V.C., U. S. Army, was recently elected to membership in The Tissue Culture Association and The Scientific Research Society of America.

MARRIAGES

Dr. Joseph M. Lebeda (UP '47), West Caldwell, N.J., to Miss Jean Leadbeater, Pirie Brook, N.J., on Jan. 8, 1950, at Pine Brook.

Dr. D. L. Williams (TEX '45), El Paso, Texas, to Miss Dortha Dell Meade, Boldman, Ky., in El Paso on June 20, 1950.

BIRTHS

Dr. (COLO '43) and Mrs. Bryant B. Nisley, Gothenburg, Neb., announce the birth of a son, Richard Thomas, on Feb. 1, 1950.

Dr. (TEX '47) and Mrs. Ben B. McCollum, Jr., Stephenville, Texas, announce the birth of a daughter, Teresa Ann, on April 23, 1950.

Dr. (KSC '46) and Mrs. David N. Scarr, West Concord, Minn., announce the birth of a son, Mark Stanley, on May 6, 1950.

Dr. (MSC '43) and Mrs. L. B. Farnsworth, Litchfield, Mich., announce the birth of a second son, Gregory Owen, on May 27, 1950.

Dr. (UP '43) and Mrs. James Deubler, Newtown, Pa., announce the birth of a daughter, Dale Campbell, on July 1, 1950.

Lt. Col. (UP '39) and Mrs. Harry Robertson, Fort Sam Houston, Texas, announce the birth of a son, Bruce Harry, on July 8, 1950.

Dr. (UP '36) and Mrs. Donald G. Lee, Philadelphia, Pa., announce the birth of a son, Donald Gifford, Jr., on July 16, 1950. Dr. Lee is associate professor of anatomy at the School of Veterinary Medicine, University of Pennsylvania.

Dr. (ISC '25) and Mrs. L. E. Stanton, Mt. Vernon, N. Y., announce the birth of a daughter, Linda Jane, on July 22, 1950.

Dr. (MSC '44) and Mrs. Robert J. Flynn, Chicago, Ill., announce the birth of a daughter, Susan Jean, on July 23, 1950. Dr. and Mrs. Flynn also have a son, Robert, and a daughter, Jean.

Major (KSC '39) and Mrs. W. D. Dieterich, V. C., First Army Area Medical Laboratory, New York City, announce the birth of a son, Frederick William, II, on July 26, 1950. Their first son, Christopher, was born in Seoul, Korea, in 1947, where Major Dieterich was military government veterinarian for South Korea.

DEATHS

★**Hugh H. Adair** (USC '08), 66, Bristol, Va., died March 3, 1950. Dr. Adair was a member of the Virginia State Veterinary Medical Association since 1908; of the Virginia Veterinary Examining Board for more than twenty consecutive years, most of the time serving as secretary-treasurer of the Board; had held every office in the Virginia state association, serving two terms as president; had served as city veterinarian and meat inspector for Bristol; and had also been postmaster at Bristol. Dr. Adair was admitted to the AVMA in 1916.

★**L. P. Bond** (WASH '19), 56, Longview, Wash., died Feb. 3, 1950. Dr. Bond was a member of the Washington State Veterinary Medical Association and of the AVMA.

H. F. Brown (CVC '09), Seymour, Ind., died recently.

★**Herman Busman** (ONT '95), 81, Holland, Mich., died April 29, 1950. Dr. Busman was a member of the National Association of Federal Veterinarians and had been a member of the AVMA for thirty-four years.

Anton E. Byron (CVC '06), Selby, S. Dak., died March 22, 1950.

John E. Campbell (WES '04), Traverse City, Mich., died in May, 1950. Dr. Campbell had been in general practice.

J. Woodward Claris (CORN '17), 56, Buffalo, N.Y., died May 4, 1950. Dr. Claris had been a member of the AVMA.

W. E. Coover (ONT '03), 82, Lexington, Ky., died July 13, 1950. He was widely known at the trotting and running horse tracks where he had fired thousands of horses, during the several years he practiced in Lexington. Dr. Coover, who retired two years ago, is survived by his widow, two sons, and four daughters.

Dolly Delano Coulson (WASH '47), 26, Phoenix, Ariz., died July 12, 1950, of injuries she received in a fall from a horse early in March. Dr. Coulson was Arizona's first practicing woman veterinarian. She operated the Countryside Veterinary Hospital, was an ardent horsewoman, member of the Arizona Veterinary Medical Association, and former secretary of the Valley Veterinary Association. Dr. Coulson is survived by her husband and her parents.

Lawrence W. Crumbaugh (KCVC '11), Emerson, Neb., died April 24, 1950.

★**Ira W. Edwards** (CVC '11), 68, Birmingham, Ala., died May 25, 1950. Dr. Edwards

was assistant veterinarian with the U.S. BAI, and was a member of the Georgia Veterinary Medical Association and of the AVMA.

David N. Fitch (CVC '90), 85, Auburn, Ind., died on April 3, 1950. Dr. Fitch was a former member of the Auburn School Board, a former city councilman, and had served as city health officer. He is survived by his widow, two sons, and a daughter.

Fred Graves (CVC '16), Belvidere, Ill., died (date unknown). Dr. Graves was a county veterinarian.

James M. Gregory (SW '16), Arlington, Texas, died (date unknown).

★**Richeson T. Gregory** (MC K '18), 64, Fredericksburg, Va., died April 6, 1950. Dr. Gregory had practiced in Fredericksburg for more than twenty years. He was a member of the Kentucky, West Virginia, and Virginia state veterinary medical associations, and had served as president of the Virginia association. He was admitted to the AVMA in 1926. He is survived by four sons.

O. W. Hansen (MC K '16), Albert Lea, Minn., died Feb. 6, 1950, following a heart attack.

J. H. Hogan (MC K '09), 68, San Mateo, Calif., died Jan. 16, 1950. Dr. Hogan was a member of the National Association of Federal Veterinarians and had been a member of the AVMA.

E. H. Holder (IND '03), 76, Farmersburg, Ind., died April 29, 1950. Dr. Holder was in general practice.

★**Walter E. Howe** (CORN '97), 78, Durham, Calif., died June 16, 1950, after a brief illness. Dr. Howe had been inspector in charge at the Denver and Sacramento bureaus of animal industry. After his retirement from the Bureau service in 1941, he was active in the operation of an almond ranch near Durham. Dr. Howe was a member of the AVMA for forty-two years.

Clinton F. Keiter (UP '99), Upper Darby, Pa., died Feb. 9, 1950. Dr. Keiter had been a member of the AVMA.

John C. Kingman (ONT '95), Pittsburgh, Pa., died (date unknown).

Edward Knobel (HAR '95), Dedham, Mass., died June 26, 1947.

William H. Lee (MC K '08), Boissevain, Manitoba, died in 1948. Dr. Lee had retired from active practice.

★**Harold M. Lewis** (CVC '08), 65, Nashua, N. H., died April 13, 1950, of a heart attack. He will be remembered for his part in controlling the outbreak of equine infectious anemia in New England several years ago. Dr. Lewis

★Indicates members of the AVMA.

was a member of the AVMA for thirty-seven years.

Charles C. Lipp (OSU '03), 76, Brookings, S. Dak., died April 20, 1950, after a heart attack. Dr. Lipp had taught at the University of Minnesota, St. Paul, for ten years, and became head of the Veterinary Department at South Dakota State College in 1913, and served in this capacity until he was retired in 1943. He is survived by his widow, Tillie Ann Lipp.

W. Harry Lynch (WES '02), Portland, Maine, died June 13, 1950.

Frank B. McCallum (IND '15), Cumberland, Md., died March 2, 1950. Dr. McCallum had been a member of the AVMA.

Ray B. McQuiston (GR '17), 60, Iron Mountain, Mich., died April 21, 1950. Dr. McQuiston was admitted to the AVMA in 1937.

Peter B. Molinare (MSC '44), 32, Escanaba, Mich., died May 4, 1950. Dr. Molinare had been a member of the AVMA.

C. A. Murray (IND '09), 63, Seymour, Ind., died recently. Dr. Murray had been a member of the AVMA.

John F. Myers (KCVC '08), Oklahoma City, Okla., died Feb. 4, 1950.

R. R. Newman (KCVC '08), 70, Allentown, Pa., died May 3, 1950. Dr. Newman retired from the U. S. Bureau of Animal Industry in 1948, because of ill health. He was a member of the AVMA for thirty-one years.

Frank D. Porter (IND '16), 70, Fort Worth, Texas, died May 23, 1950. Dr. Porter was a member of the National Association of Federal Veterinarians. He was admitted to the AVMA in 1918.

Martin L. Quigley (UP '12), Canton, Ohio, died March 30, 1950.

Edwin S. Ring (NYA '14), Philadelphia, Pa., died Jan. 29, 1950. Dr. Ring had been employed by the U. S. Bureau of Animal Industry.

Lt. Col. Albert A. Roby (KSC '34), 44, Apopka, Fla., died May 4, 1950. Colonel Roby was commissioned a second lieutenant in the Veterinary Corps in 1934 and was appointed to the temporary grade of lieutenant colonel in 1945. He was a graduate of the Medical Field Service School and the Army Veterinary School.

Colonel Roby was taken prisoner of war at the fall of Bataan on April 10, 1942, and was released in September, 1945. He was retired from active duty on Feb. 28, 1950, because of physical disability. He had been a member of the AVMA.

Lewis Ellis Schweizer (OSU '25), 47, Cleveland, Ohio, died April 9, 1950.

Zay C. Shum (KCVC '07), Biggsville, Ill., died March 12, 1950, after several years of ill health.

G. P. Simmons (ISC '12), Union, Iowa, died June 17, 1950. Dr. Simmons had been in general practice.

Harvey E. Smith (COLO '18), Tacoma, Wash., died May 1, 1950, of a heart attack. Dr. Smith served in the Veterinary Corps during World War I and then entered the Bureau of Animal Industry where he was employed until his retirement in 1948. Dr. Smith had been a member of the AVMA for twenty-nine years.

Thomas L. Swift (AVC '90), 83, Falmouth, Mass., died April 21, 1950. Dr. Swift had served as chairman of the Falmouth City Board of Health for twenty years.

Edward J. Tansey (IND '08), 80, Monrovia, Ind., died recently. Dr. Tansey had been a member of the AVMA for thirty-eight years.

V. G. Taylor (ONT '40), 36, Leipsic, Ohio, died April 8, 1950, in an automobile accident. Dr. Taylor was a member of the Ohio state and Northwestern Ohio veterinary medical associations and of the AVMA.

C. O. Van Winkle (CVC '02), Fort Madison, Iowa, died Jan. 9, 1950.

Harry S. Weeks (CVC '08), Elma, Wash., died Nov. 29, 1947.

George F. West (KCVC '14), Minden, Neb., died in August, 1949.

C. A. White, Sr. (CVC '94), 83, Hollywood, Calif., died Feb. 2, 1950. Dr. White had taught at the Chicago Veterinary College. He was admitted to the AVMA in 1906.

C. V. Williams (KCVC '09), 65, Frankfort, Kan., died March 4, 1950. Dr. Williams was admitted to the AVMA in 1943.

Henry O. Woodrow (IND '02), Linton, Ind., died (date unknown). Dr. Woodrow was a general practitioner.

Official Roster, 1950 - 1951

American Veterinary Medical Association

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Executive Board

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 A. L. MacNabb, *1st District*, Ontario Veterinary College, Guelph, Ont. (1952).
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 O. Norling-Christensen, *3rd District*, 730 Hibbard Rd., Wilmette, Ill. (1953).
 R. S. Sugg, *4th District*, 408 Magnolia Ave., Auburn, Ala. (1954).
 C. F. Schlotthauer, *5th District*, 508 15th Ave., Rochester, Minn. (1955).
 N. J. Miller, *6th District*, Box 335, Eaton, Colo. (1951).
 E. E. Wegner, *7th District*, College of Veterinary Medicine, State College of Washington, Pullman, Wash. (1955).
 W. G. Brock, *8th District*, *ibid.*
 Edwin Laitinen, *9th District*, 993 N. Main St., West Hartford, Conn. (1952).
 B. J. Killham, *10th District*, School of Veterinary Medicine, Michigan State College, East Lansing, Mich. (1954).

- W. M. Coffee, *ex officio*, La Center, Ky.
 John R. Wells, *ex officio*, Box 2424, Palm Beach, Fla.
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*The Board of Governors is also, *ex officio*, the Committee on Journal for the Association's publications.

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- J. A. Campbell, *Diseases of Captive Wild Animals*.—45 Spadina Rd. Toronto, Ont.
 J. N. Campbell, *Large Animal Medicine*.—School of Veterinary Medicine, University Farm, St. Paul 1, Minn.

L. R. Davenport, *Public Health*.—225½ S. 4th St., Springfield, Ill.

Geo. R. Fowler, *Surgery and Obstetrics*.—Division of Veterinary Medicine, Iowa State College, Ames, Iowa.

L. J. Goss, *Diseases of Wildlife and Furbearing Animals*.—New York Zoological Park, 185th St. and Southern Blvd., New York 60, N. Y.

G. W. Jensen, *Cattle Practice*.—Antioch, Ill.

E. Jungherr, *Poultry Diseases*.—Storrs Agricultural Experiment Station, Storrs, Conn.

Brig. Gen. J. A. McCallam, *Military Veterinary Medicine*.—Office of Surgeon General, Department of Army, Main Navy Bldg., Washington 25, D. C.

L. T. Railsback, *Swine Practice*.—Ellsworth, Minn.

R. E. Rebrassier, *Parasitology*.—Veterinary Clinic, Ohio State University, Columbus 10, Ohio.

W. H. Riser, *Small Animal Medicine*.—5335 Touhy Ave., Skokie, Ill.

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W. A. Young, 157 W. Grand Ave., Chicago 10, Ill.

Section Officers*

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SURGERY AND OBSTETRICS.—J. F. Hokanson, *Chairman*, School of Veterinary Medicine, Alabama Polytechnic Institute, Auburn, Ala.; G. A. Gettelman, *Secretary*, 384 W. Sumner St., Hartford, Wis.

*These officers also constitute the Committee on Program with the executive secretary or assistant executive secretary of the AVMA as chairman, ex officio.

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Mrs. C. E. Bild, *President-Elect*, 890 N. E. 98th St., Miami 38, Fla.

Council on Education

*W. A. Aitken, *Chairman*, Merrill, Iowa (Representing General Practice) (1952).

*W. A. Hagan, *Secretary*, New York State Veterinary College, Cornell University, Ithaca, N. Y. (Representing Basic Sciences) (1954).

I. B. Boughton, School of Veterinary Medicine, Texas A. & M. College, College Station, Texas (Representing Research and Education) (1952).

Garth A. Edge, Provincial Department of Public Health, Toronto, Ont. (Representing Public Health) (1951).

*James Farquharson, Division of Veterinary Medicine, Colorado A. & M. College, Ft. Collins, Colo. (Representing Clinical Sciences) (1956).

S. W. Haigler, 7645 Delmar Blvd., St. Louis 5, Mo. (Representing Small Animal Practice) (1954).

C. C. Hastings, Williamsville, Ill. (Representing Large Animal Practice) (1953).

Lt. Col. William E. Jennings, 1019 Hanshaw Rd., Ithaca, N. Y. (Representing Military Service) (1956).

M. S. Shahan, Pathological Division, Bureau of Animal Industry, U. S. Department of Agriculture, Washington 25, D. C. (Representing Government Service) (1955).

*These three members comprise the Executive Committee of the Council and are elected by the Executive Board; the remaining members are appointed by the president.

Legislation

- J. G. Hardenbergh, *Chairman, ex officio*, 600 S. Michigan Ave., Chicago 5, Ill.
- C. C. Franks, 2330 Amherst St., Des Moines 13, Iowa (1953).
- Geo. W. Gillie, 628 Oakdale Dr., Ft. Wayne, Ind. (1955).
- Geo. H. Hopson, Millbrook, N. Y. (1951).
- B. T. Simms, Bureau of Animal Industry, U. S. Department of Agriculture, Washington 25, D. C. (1954).

Resolutions

- A. A. Husman, *Chairman*, 320 Agriculture Bldg., Raleigh, N. Car.
- J. G. Hardenbergh, *Secretary, ex officio*, 600 S. Michigan Ave., Chicago 5, Ill.
- J. Gordon Anderson, 1016 9th Ave. W., Calgary, Alberta.
- Allan S. Barnes, P. O. Box 231, Frankfort, Ky.
- John H. Gillman, Box 321, DeSoto Station, Memphis, Tenn.
- Charles H. Reid, Box 735, Hollywood 28, Calif.
- Charles C. Rife, 420 Edgewood Ave. N. E., Atlanta, Ga.

Biological Products

- Glen L. Dunlap, *Chairman*, 800 Woodswether Rd., Kansas City 6, Mo. (1951).
- C. P. Bishop, 217 Forster St., Harrisburg, Pa. (1954).
- William L. Gates, Box 417, Clarksdale, Miss. (1955).
- O. E. Herl, 1401 Ogleshorpe St., N. W., Washington 11, D. C. (1952).
- L. R. Vawter, Department of Veterinary Science, University of Nevada, Reno, Nev. (1953).

Therapeutic Agents

- Roger P. Link, *Chairman*, Department of Veterinary Physiology and Pharmacology, University of Illinois, Urbana, Ill. (1951).
- D. K. Detweiler, 48 Sproul Rd., Broomall, Pa. (1953).
- L. A. Gendreau, 67 Willington S., Sherbrooke, Que. (1952).
- L. Meyer Jones, Division of Veterinary Medicine, Iowa State College, Ames, Iowa. (1955).
- J. V. Lacroix, Box 872, Evanston, Ill. (1954).

C. D. Van Houweling, *ex officio*, 600 S. Michigan Ave., Chicago 5, Ill.

Public Relations

- A. H. Quin, Jr., *Chairman*, 239 E. 72nd Terrace, Kansas City 5, Mo. (1954).
- W. M. Coffee, La Center, Ky. (1953).
- Louis A. Corwin, 136-21 Hillside Ave., Richmond Hill 18, N. Y. (1952).
- Clifton D. Lowe, 3429 Oakwood Terrace N. W., Washington 10, D. C. (1951).
- A. G. Madden, Jr., Madeira, Ohio (1955).

Poultry

- Ellis E. Jones, *Chairman*, 1451 Mirasol St., Los Angeles 23, Calif. (1953).
- J. O. Alberts, College of Veterinary Medicine, University of Illinois, Urbana, Ill. (1954).
- C. A. Brandly, Department of Veterinary Science, University of Wisconsin, Madison, Wis. (1951).
- John P. Delaplane, Rhode Island State College, Kingston, R. I. (1950).
- C. D. Lee, Poultry Department, Iowa State College, Ames, Iowa (1955).
- A. B. Wickware, Division of Animal Pathology, Central Experimental Farm, Ottawa, Ont. (1952).

Parasitology

- H. E. Kemper, *Chairman*, Box 464, Albuquerque, N. M. (1951).
- D. W. Baker, New York State Veterinary College, Cornell University, Ithaca, N. Y. (1953).
- E. A. Benbrook, Department of Veterinary Pathology, Iowa State College, Ames, Iowa (1954).
- W. E. Swales, Institute of Parasitology, Macdonald College P. O., Quebec, P. Q. (1955).
- R. D. Turk, School of Veterinary Medicine, Texas A. & M. College, College Station, Texas (1952).

Nutrition

- M. J. Swenson, *Chairman*, Veterinary Research Institute, Iowa State College, Ames, Iowa (1953).
- J. Gordon Anderson, 1016 9th Ave. W., Calgary, Alberta (1954).
- T. J. Jones, School of Veterinary Medicine, Texas A. & M. College, College Station, Texas (1955).
- Jesse Sampson, College of Veterinary Medicine, University of Illinois, Urbana, Ill. (1952).
- Hubert Schmidt, School of Veterinary Medicine,

Texas A. & M. College, College Station, Texas (1951).

Registry of Veterinary Pathology Army Institute of Pathology

W. H. Feldman, *Chairman*, The Mayo Foundation, Rochester, Minn. (1951).

Major Chester A. Gleiser, Armed Forces Institute of Pathology, 7th St. and Independence Ave., Washington, D. C. (1952).

Hugh G. Grady, Scientific Director, American Registry of Pathology, Army Medical Museum, Washington 25, D. C. (Consulting member).

Hilton A. Smith, Veterinary Laboratory, Texas A. & M. College, College Station, Texas (1955).

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T. Childs (as Veterinary Director General of Canada), Health of Animals Division, Department of Agriculture, Ottawa, Ont.

R. A. Kelser (as AVMA Representative to Division of Medical Sciences, National Research Council), School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa.

Brig. Gen. J. A. McCallam (as Chief of the Veterinary Division), Office of the Surgeon General, Department of the Army, Main Navy Bldg., Washington 25, D. C.

B. T. Simms (as Chief of the BAI, USDA), Bureau of Animal Industry, U. S. Department of Agriculture, Washington 25, D. C.

John R. Wells (as President-Elect of the AVMA), Box 2424, Palm Beach, Fla.

*This committee is charged with the selection of recipients of the Twelfth International Veterinary Congress Prize, the Borden Award, and the AVMA Award.

History

H. P. Hoskins, *Chairman*, 2766 Garrison St., Evanston, Ill. (1955).

Joseph M. Arburua, 26 Fell St., San Francisco, Calif. (1953).

R. R. Dykstra, School of Veterinary Medicine, Kansas State College, Manhattan, Kan. (1954).

Charles Murray, Division of Veterinary Medicine, Iowa State College, Ames, Iowa (1951).

A. E. Wight, 3730 18th St., N. E., Washington 18, D. C. (1952).

Code of Ethics

S. W. Haigler, *Chairman*, 7645 Delmar Blvd., St. Louis 5, Mo. (1952).

McKenzie Heath, 213 N. 15th St., Birmingham, Ala. (1951).

Jack E. Winkler, 1034 Monmouth St., Newport, Ky. (1953).

Research Council

(Appointments are for three-year terms)

Anatomy and Histology.—L. E. St. Clair, *Secretary*, College of Veterinary Medicine, University of Illinois, Urbana, Ill. (1952).

Bacteriology (Immunology and Biologic Therapy).—L. C. Ferguson, 2456 Lexington Ave., Columbus 3, Ohio (1953).

Biochemistry and Animal Nutrition.—T. J. Jones, School of Veterinary Medicine, University of Georgia, Athens, Ga. (1953).

Large Animal Medicine.—James Farquharson, Division of Veterinary Medicine, Colorado A. & M. College, Fort Collins, Colo. (1953).

Large Animal Surgery.—A. G. Danks, Bolton Farm, R.F.D. 1, Bristol, Pa. (1951).

Parasitology.—W. E. Swales, Institute of Parasitology, Macdonald College P. O., Quebec, P. Q. (1951).

Pathology.—L. M. Roderick, School of Veterinary Medicine, Kansas State College, Manhattan, Kan. (1953).

Physiology and Pharmacology.—D. K. Detweiler, 48 Sproul Rd., Broomall, Pa. (1953).

Poultry Pathology.—C. A. Brandly, Department of Veterinary Science, University of Wisconsin, Madison, Wis. (1951).

Small Animal Medicine.—C. P. Zepp, Sr., 136 W. 53rd St., New York 19, N. Y. (1952).

Small Animal Surgery.—C. F. Schlotthauer, *Vice-Chairman*, Division of Experimental Medicine, The Mayo Foundation, Rochester, Minn. (1952).

Veterinary Hygiene.—Andrew I. MacNabb, Ontario Veterinary College, Guelph, Ont. (1952).

Virus Diseases.—Alexander Zeissig, 305 Oak Ave., Ithaca, N. Y. (1952).

X-Ray.—M. A. Emmerson, *Chairman*, Division of

Veterinary Medicine, Iowa State College, Ames, Iowa (1951).

Member-at-Large.—Hadleigh Marsh, Agricultural Experiment Station, Bozeman, Mont. (1951).

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B. V. Alfredson, *Chairman*, School of Veterinary Medicine, Michigan State College, East Lansing, Mich.

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L. Meyer Jones, Division of Veterinary Medicine, Iowa State College, Ames, Iowa.

F. J. Kingma, Veterinary Laboratory, College of Veterinary Medicine, The Ohio State University, Columbus, Ohio.

H. J. Milks, New York State Veterinary College, Cornell University, Ithaca, N. Y.

Joint Committee on Foods

Louis A. Corwin, *Chairman*, 136-21 Hillside Ave., Richmond Hill 18, N. Y. (AAHA) (1953).

J. G. Hardenbergh, *Secretary*, 600 S. Michigan Ave., Chicago 5, Ill. (AVMA) (1951).

C. W. Bower, 3119 Stafford St., Topeka, Kan. (AAHA) (1952).

J. B. Engle, 32 Lakeview Ave., Short Hills, N. J. (AVMA) (1954).

Lloyd C. Moss, Veterinary Hospital, Colorado A. & M. College, Fort Collins, Colo. (1955).

Special Committees

(Terms are for one year unless reappointed)

Nomenclature of Diseases

Carl Olson, Jr., *Chairman*, Department of Animal Pathology and Hygiene, University of Nebraska, Lincoln, Neb.

F. R. Beaudette, New Jersey Agricultural Experiment Station, New Brunswick, N. J.

C. Lawrence Blakely, Angell Memorial Animal Hospital, 180 Longwood Ave., Boston, Mass.

R. A. Hendershott, 33 Oak Lane Ave., Trenton 8, N. J.

I. A. Merchant, Department of Veterinary Hygiene, Division of Veterinary Medicine, Iowa State College, Ames, Iowa.

Peter Olafson, New York State Veterinary College, Cornell University, Ithaca, N. Y.

Benjamin Schwartz, Zoological Division, Bureau of Animal Industry, U. S. Department of Agriculture, Washington 25, D. C. (Consulting Member).

H. C. Stephenson, New York State Veterinary College, Cornell University, Ithaca, N. Y.

Frank Thorp, Jr., Department of Animal Pathology, School of Veterinary Medicine, Michigan State College, East Lansing, Mich.

Food and Milk Hygiene

H. E. Kingman, Jr., *Chairman*, c/o Wilson & Co., 4100 S. Ashland Ave., Chicago, Ill.

Raymond J. Helvig, Milk and Food Section, Sanitary Engineering Division, U. S. Public Health Service, Washington 25, D. C.

Clyde L. Kern, c/o Dairymen's League Cooperative Association, 11 W. 42nd St., New York 18, N. Y.

C. H. Pals, Bureau of Animal Industry, U. S. Department of Agriculture, Washington 25, D. C.

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J. F. Shigley, 322 S. Burroughs St., State College, Pa.

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T. T. Chaddock, Box 51, Bridgeport, Mich.

John R. Gorham, 1607 Fisk St., Pullman, Wash.

L. J. Goss, New York Zoological Park, 185th St. & Southern Blvd., New York 60, N. Y.

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C. D. Van Houweling, *Secretary*, 600 S. Michigan Ave., Chicago 5, Ill.

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R. J. Cyrog, 7555 Lincoln Ave., Skokie, Ill.

J. V. Lacroix, 1817 Church St., Evanston, Ill.

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- National Research Council (Division of Medical Sciences).—R. A. Kelser, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa. (1953).
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- Ralston Purina Research Fellowship Committee.—M. A. Emmerson, Division of Veterinary Medicine, Iowa State College, Ames, Iowa (1953).
- United States Pharmacopoeial Convention.—H. E. Moskey, Food and Drug Administration, Washington 25, D. C. (1960).
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*Pursuant to article XII, section 1, part 4, of the Administrative By-Laws, as amended at the seventy-eighth annual meeting.

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An' Related Topics

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Numbers (Continued)

2) Besides the groups of terms laced into the literature of veterinary medicine and animal production which we arbitrarily number with figures (2 cases, 24 horses, 60 acres, 20 lb., 3 Gm., etc), there are two other groups which are commonly numbered differently. The one is the generality of nouns expressed with spelled numbers from *one* through *ten* and with figures from 11 up. Some writers start figures at 10 because it has two digits, others spell out *ten* because it is a three-letter word. To spell or not to spell *ten* is a matter of choice. But, generally, numbers above *ten* are expressed in digits (exceptions understood):

two farms	12 stalls
four herds	64 stanchions
seven doses	16 injections
three hospitals	48 kennels
eight forceps	36 instruments

In the AVMA publications, there are two exceptions to this rule: (1) The age of living things is always written in digits—6-month-old calf, 16-year-old horse (this rule was covered in the September JOURNAL, ad. p. 24); (2) periods of time up to and including one hundred are spelled out, as described in the following rule.

3) The AVMA publications express spans of time in spelled out numbers from *one* through *one hundred*, e.g.:

four seconds	three weeks
twenty minutes	two decades
seventy-two hours	eight months
thirty-eight days	sixteen years
	forty centuries

The object of this rule is to prevent inelegant cluttering of reading material with figures. Examples of correct usage are:

Give 2 Gm. every four hours.

The 12 cows in experiment 2 were fed a mixed ration for twenty-three days.

Exceptions are made to fit the narrow spacings of tabulated material, and in ad-

(Continued on p. 22)

COMING MEETINGS

Notices of Coming Meetings must be received by 8th of month preceding date of issue

New Mexico Veterinary Medical Association. Annual meeting, Hilton Hotel, Albuquerque, N. Mex., Oct. 2-3, 1950. O. J. Rollag, 1825 Campus Boulevard, Albuquerque, N. Mex.

Pennsylvania State Veterinary Medical Association. Annual meeting, Galen Hall, Wernersville, Pa., Oct. 4-6, 1950. Raymond C. Snyder, N.W. Corner Walnut St. and Copley Rd., Upper Darby, Pa., secretary.

Purdue University, thirty-eighth annual short course for veterinarians, Oct. 4-6, 1950. L. M. Hutchings, Purdue University School of Agriculture, Lafayette, Ind., chairman.

West Virginia Veterinary Medical Association. Annual meeting, Stonewall Jackson Hotel, Clarksburg, W. Va., Oct. 9, 1950. James P. Bailey, Bluefield, W. Va., secretary.

New England Veterinary Medical Association. Annual meeting, Mohican Hotel, New London, Conn., Oct. 10-11, 1950. C. Lawrence Blakely, 180 Longwood Ave., Boston, Mass., secretary.

International Association of Milk and Food Sanitarians. Annual convention, Dennis Hotel, Atlantic City, N. J., Oct. 13-16, 1950. K. G. Weckel, University of Wisconsin, Madison, Wis., president-elect.

Missouri, University of. Annual short course. School of Veterinary Medicine, University of Missouri, Columbia, Mo., Oct. 16-17, 1950. Cecil Elder, chairman.

Iowa, Eastern Veterinary Medical Association. Annual meeting, Hotel Montrose, Cedar Rapids, Iowa, Oct. 19-20, 1950. N. R. Waggoner, Olin, Iowa, secretary.

Minnesota, Conference for Veterinarians. Annual conference. University of Minnesota, School of Veterinary Medicine, St. Paul 1, Minn., Oct. 25-26, 1950. W. L. Boyd, 2227 Hillside Ave., St. Paul 8, Minn., chairman.

Interstate Veterinary Medical Association. Annual meeting, Martin Hotel, Sioux City, Iowa, Nov. 1-2, 1950. H. C. Smith, 2415 W. Solway, Sioux City, Iowa, secretary.

Association of Military Surgeons. Annual Convention, Hotel Statler, New York City, Nov. 9-11, 1950. (A veterinary medical panel will be presented Friday afternoon, November 10.) Brig. General J. A. McCallam, V.C., Department of the Army, Office of the Surgeon General, Washington 25, D.C.

(Continued on p. 22)



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(WATCH YOUR ENGLISH — continued from p. 20)

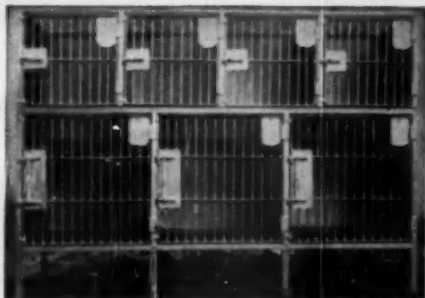
jectival time units requiring two hyphens, as in 24-hour culture, 48-hour intervals, instead of the awkward: twenty-four-hour culture, forty-eight-hour intervals, etc.

To express numbers in figures or spelled out words, there's but to remember the three groups given above, namely:

1) Certain objects always numbered with figures; (2) other objects numbered with spelled out words from one through ten and with figures from 11 up; and (3) spans of time (except age) generally spelled out as shown above.

Seriously, it would be interesting to know when, why, and how we happened to blunder into the use of the word *rumenatoric* for a stimulant of the rumen. It's a botch and a blotch however its carpentry is taken apart.

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(COMING MEETINGS — continued from p. 20)

Mississippi Valley Veterinary Medical Association. Fall meeting. Pere Marquette Hotel, Peoria, Ill., Nov. 1-2, 1950. R. J. Kirkpatrick, 1235 N. Henderson St., Galesburg, Ill., secretary.

United States Livestock Sanitary Association. Annual meeting. Westward-Ho Hotel, Phoenix, Ariz., Nov. 1-3, 1950. Dr. R. A. Hendershott, 1 West State St., Trenton, N.J., secretary.

Cornell Nutrition Conference for Feed Manufacturers. Statler Hotel, Buffalo, N. Y., Nov. 2-3, 1950. F. W. Hill, Poultry Department, Cornell University, Ithaca, N. Y., chairman.

Southern Veterinary Medical Association. Annual meeting. Baker Hotel, Dallas, Texas, Nov. 6-8, 1950. A. A. Husman, 320 Agricultural Bldg., Raleigh, N. Car., secretary.

Texas, State Veterinary Medical Association of. Annual winter meeting will be held in conjunction with the Southern Veterinary Medical Association. Baker Hotel, Dallas, Texas, Nov. 6-8, 1950. Leon G. Cloud, 2833 W. Seventh St., Fort Worth 7, Texas, resident secretary.

Third Inter-American Congress on Brucellosis. The. Washington, D.C., Nov. 6-10, 1950. Wesley W. Spink, University of Minnesota Medical School, chairman.

American College of Veterinary Pathologists.

(Continued on p. 24)

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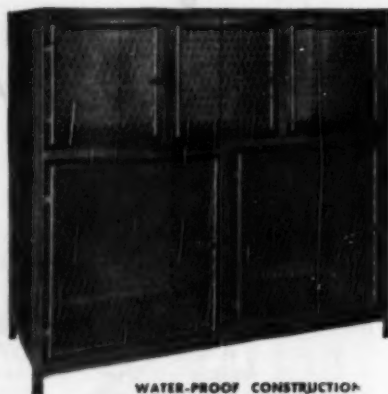


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(COMING MEETINGS — continued from p. 22)

Seminars on teaching methods for veterinary pathology and on histopathology. Nov. 24-25, 1950 (location to be announced later). Major T. Carl Jones, Casual Off. Co., Personnel Center, Fort Dix, N.J.

American Association for the Advancement of Science. Annual meeting. Cleveland, Ohio, Dec. 26-30, 1950. Raymond L. Taylor, 1515 Massachusetts Ave., N. W. Washington 5, D. C., assist. admin. secretary.

New York State Veterinary College. Annual conference for veterinarians. Cornell University, Ithaca, N. Y., Jan. 3-5, 1951. W. A. Hagau, dean.

Oklahoma Veterinary Medical Association. Annual meeting. Skirvin Hotel, Oklahoma City, Okla., Jan. 8-9, 1951. Lewis H. Moe, 1736 W. 3rd Ave., Stillwater, Okla., secretary.

Indiana Veterinary Medical Association. Annual meeting. Hotel Severin, Indianapolis, Ind., Jan. 10-12, 1951. W. W. Garverick, Zionsville, Ind., secretary.

Tennessee Veterinary Medical Association. Annual meeting. Maxwell House Hotel, Nashville, Tenn., Jan. 15-16, 1951. H. W. Nance, 417 N. Military St., Lawrenceburg, Tenn., secretary.

Iowa Veterinary Medical Association. Annual meeting. Hotel Fort Des Moines, Des Moines, Iowa, Jan. 17-19, 1951. F. B. Young, P.O. Box 6, Waukee, Iowa, secretary.

Intermountain Veterinary Medical Association. Annual meeting. Newhouse Hotel, Salt Lake City, Utah, Jan. 18-20, 1951. M. L. Miner, Logan, Utah, secretary.

California, University of. Conference for Veterinarians. School of Veterinary Medicine, Davis, Calif., Jan. 22-24, 1951. George H. Hart, dean.

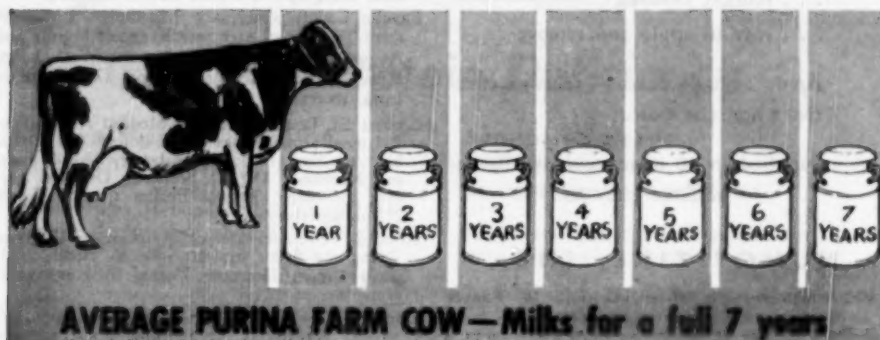
Michigan State College. Annual postgraduate conference for veterinarians. School of Veterinary Medicine, Michigan State College, East Lansing, Mich., Jan. 24-25, 1951. C. S. Bryan, dean.

Illinois State Veterinary Medical Association. Annual meeting. Hotel Sherman, Chicago, Ill., Jan. 25-27, 1951. A. G. Misener, 6448 North Clark St., Chicago 26, Ill., secretary.

Minnesota State Veterinary Medical Society. Annual meeting. Hotel Nicolle, Minneapolis, Minn., Jan. 31-Feb. 2, 1951. B. S. Pomeroy, School of Veterinary Medicine, University of Minnesota, St. Paul 1, Minn., secretary.

American Veterinary Medical Association. Annual meeting. Milwaukee Auditorium, Milwaukee, Wis., Aug. 20-23, 1951. J. G. Hardenbergh, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

(Continued on p. 26)



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(COMING MEETINGS — continued from p. 24)

Regularly Scheduled Meetings

Bay Counties Veterinary Medical Association, the second Tuesday of each month. Russell P. Cope, 1205 San Pablo Ave., Berkeley 6, Calif., secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. Thomas Eville, Route 1, Box 136H, Fresno, Calif., secretary.

Chicago Veterinary Medical Association, the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.

East Bay Veterinary Medical Association, bi-monthly, the fourth Wednesday. O. A. Soave, 5666 Telegraph, Oakland, Calif., secretary.

Fayette County Veterinary Association, Iowa, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Greater St. Louis Veterinary Medical Association. Ralston-Purina Research Building, St. Louis, Mo., the first Friday in February, April, June, and November. W. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.

Houston Veterinary Medical Association, Houston, Texas, the first Thursday of each month. Edward Lapon, Houston, Texas, secretary-treasurer.

Illinois Valley Veterinary Medical Association, the second Wednesday of even-numbered months. R. A. Case, 400 S. Garden St., Peoria, Ill., secretary.

Indiana Tenth District Veterinary Medical Association, third Thursday of each month. L. A. Snider, New Palestine, Ind., secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month, in Louisville or within a radius of 50 miles. F. M. Kearns, 3622 Frankfort Ave., Louisville 7, Ky., secretary.

Kansas City Veterinary Medical Association, the third Tuesday of each month, in the Hotel Continental, 11th and Baltimore, Kansas City, Mo. K. M. Curtis, 70 Central Ave., Kansas City 18, Kan., secretary.

Keystone Veterinary Medical Association, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., the fourth Wednesday of each month, October through May. Leonard

(Continued on p. 28)



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(COMING MEETINGS — continued from p. 26)

- Krawitz, 5300 Lancaster Ave., Philadelphia 31, Pa., secretary.
- Maricopa County Veterinary Association, the second Tuesday of each month. Charles J. Prchal, 1722 East Almeria Road, Phoenix, Ariz., secretary.
- Massachusetts Veterinary Association. Hotel Statler, Boston, Mass., the fourth Wednesday of each month. C. L. Blakely, Angell Memorial Animal Hospital, 180 Longwood Ave., Boston, Mass., secretary-treasurer.
- Michiana Veterinary Medical Association, the second Thursday of each month. Write R. W. Worley, secretary, 3224 L.W.W., South Bend, Ind., for location.
- Michigan, Southeastern Veterinary Medical Society. Herman Kiefer Hospital, Detroit, Mich., the second Wednesday of each month from October through May.
- Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humbolt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.
- Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. C. Edward Taylor, 2146 South Broad St., San Luis Obispo, Calif., secretary.
- New York City Veterinary Medical Association. Hotel Statler, New York, N. Y., the first Wednesday of each month. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.
- North San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. V. E. Graff, Oakdale, Calif., secretary.
- Orange Belt Veterinary Medical Association, the second Monday of each month. James R. Ketchersid, 666 East Highland Avenue, San Bernardino, Calif., secretary.
- Orange County Veterinary Medical Association, bimonthly, the second Tuesday of each month. J. H. Bower, P. O. Box 355, Santa Ana, Calif., secretary.
- Peninsula Veterinary Medical Association, the third Monday of each month. E. W. Paul, Box 866, Redwood City, Calif., secretary.

(Continued on p. 30)

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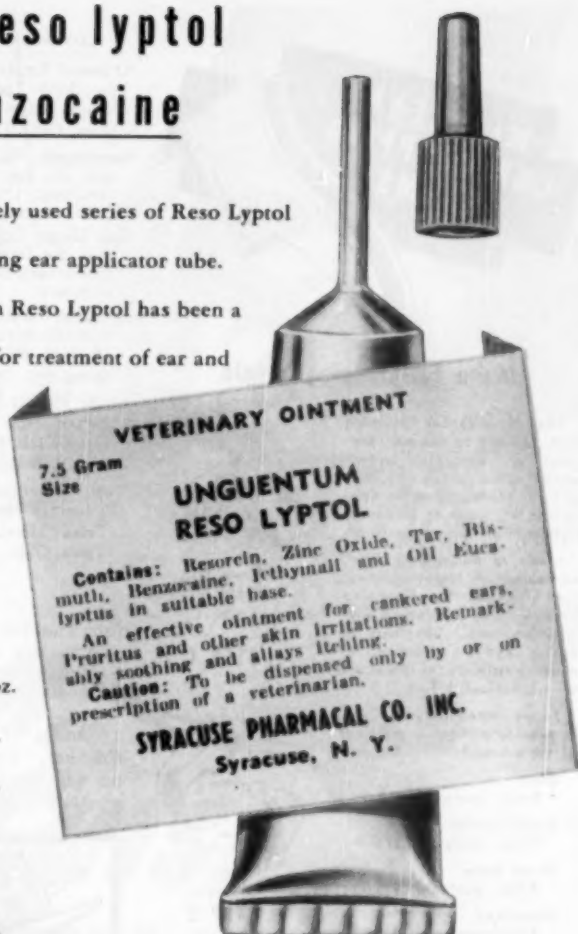
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(COMING MEETINGS — continued from p. 28)

Redwood Empire Veterinary Medical Association, the third Thursday of each month. John E. Wion, 3164 Redwood Highway South, Santa Rosa, Calif.

Sacramento Valley Veterinary Medical Association, the fourth Friday of each month. R. C. Goulding, 11511 Capitol Avenue, Sacramento, Calif., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month. R. J. McFarland, 3621 Jewell St., San Diego 9, Calif., secretary.

Southern California Veterinary Medical Association, the third Wednesday of each month. D. H. McDole, 8674 Melrose Ave., Los Angeles 46, secretary.

South Florida Veterinary Society, the third Tuesday of each month, 8:00 p.m., at the Peckway Skeet Club, Robert P. Knowles, 2936 N.W. 17th Ave., Miami, Fla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month, 8:00 p.m., at the Tulsa Hotel. R. S. Todd, 1222 S. Lewis, Tulsa, Okla., secretary.

Foreign Meetings

First Pan-American Veterinary Conference. Lima, Peru, May 20-26 (tentative), 1951. José Santivañez, dean, Veterinary College, San Marcos University, Lima, Peru.

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WANTED VETERINARIAN—to specialize in poultry with large poultry-breeding farm in Midwest. Excellent opportunity. Address "Box Z 6," c/o JOURNAL of the AVMA.

WANTED—graduate veterinarian, draft-free, for small animal hospital in western New York. Must be capable of assuming full charge if necessary. State qualifications and salary desired, in first communication. Address "Box Z 9," c/o JOURNAL of the AVMA.

WANTED—graduate veterinarian of AVMA-approved school, for mixed practice, south-central Kansas. Salary to start. Partnership later if desirable. Address Dr. George Watson, Box 113, Kingman, Kan.

WANTED—graduate veterinarian for public health meat control. Experience in meat inspection preferred, but not essential. Starting salary \$283.50 per month with yearly increments. Two weeks' vacation, sick leave and liberal retirement benefits. Give age, experience, references, and other particulars when answering. Permanent position. Address "Box Z 11," c/o JOURNAL of the AVMA.

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WANTED IMMEDIATELY—veterinarian to assist with mixed practice, live in hospital apartment. Salary and percentage. Send references, qualifications, and snapshot. Address Dr. J. W. Frock, Reisterstown Veterinary Center, Reisterstown, Md.

Ohio animal hospital desirous of young veterinarian, with opportunity of becoming part owner. Established small animal hospital with opportunity for Thoroughbred and cattle work. Address "Box Z 4," c/o JOURNAL of the AVMA.

Graduate veterinarian wanted to assist in flourishing mixed practice, with definite option to buy. An unusual opportunity for the right man. Please state age, marital status, qualifications, and send photo in first letter. Address "Box Z 1," c/o JOURNAL of the AVMA.

WANTED—Florida-licensed veterinarian to lease small animal clinic in Coral Gables, Miami, Florida. Address Mrs. Marie Brown, 4573 Ponce de Leon, Coral Gables, Fla.

(Continued on p. 34)

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(CLASSIFIED ADS — continued from p. 52)

WANTED VETERINARIAN—assistant in mixed practice, predominantly dairy cattle and swine. Give references, wages expected, and marital status in first letter. Address Dr. E. W. Krueger, 115 E. Main St., Evansville, Wis.

VETERINARIANS WANTED—graduates of AVMA-approved schools to do tuberculosis and brucellosis testing, calfhood vaccination, regulatory, public relations, and supervisory work. Civil service status, starting salary approximately \$5,000 year. Permanent location. Contact Bureau of Personnel, State Capitol, Madison 2, Wis.

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Wanted—Positions

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Young veterinarian desires position or partnership with elderly veterinarian. Five years' experience in mixed practice. Graduate of AVMA-approved school. No geographic preference. Address "Box Z 5," c/o JOURNAL of the AVMA.

WANTED—association with small animal hospital which offers future for young graduate of

(Continued on p. 56)

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(CLASSIFIED ADS — continued from p. 34)

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WANTED—assistantship in small animal practice, or purchase of a similar practice. Have \$5,000 cash toward purchase. Anywhere in U. S. A. Address "Box Z 14," c/o JOURNAL of the AVMA.

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Cornell graduate desires position with general practitioner in eastern states, preferably leading to purchase. Married, experienced, and has car. Address "Box Z 25," c/o JOURNAL of the AVMA.

WANTED POSITION—teaching or related work. Would consider part time work with opportunity for limited private practice. 1943 Kansas State College graduate. Age 40. Address "Box Z 27," c/o JOURNAL of the AVMA.

Latvian veterinarian, 42, university graduate, married, desires position as assistant. Eighteen years' experience in large animal practice. Address "Box Z 22," c/o JOURNAL of the AVMA.

Veterinarian from Europe, 32, married, six years' experience, wishes to work as assistant in mixed practice. First citizenship papers taken out. Prefer midwestern states. Address "Box Z 21," c/o JOURNAL of the AVMA.

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(Continued on p. 38)

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One of the noblest professions is that of the veterinarian; he dedicates his life to the relieving of pain in the dumb creation, which cannot speak for itself.

The dog greatly is dependent upon his owner for proper care and attention. There exists a distinct obligation upon the owner not to wait too long, not to wait until the dog is almost on the threshold of death, before taking it to the veterinarian for professional attention. Too often, when the dog dies at the veterinary hospital, the veterinarian is blamed for the death when really the owner should be blamed inasmuch as the dog was brought to the veterinarian in the later stages of the illness.

The fee of the veterinarian never should be begrudged. He who owns a pedigreed dog, has a valuable investment and the services of the veterinarian act as insurance to preserve this investment.

If the dog is the ordinary mongrel dog, nevertheless he is entitled to the same care which the pedigreed dog receives. In proper dog care, there is no distinction between mutt and blueblood.

When you take your dog to the veterinarian, be frank in what you say; tell him everything even tho you know that some of the things you have been doing, especially in the way of feeding, have not been advisable. Tell him everything you have observed in the actions of the dog. By giving him this information, you will be helping him greatly and your dog even more.—W. J.

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Shades of the old school! A group of distinguished pharmacologists surveying the field for the best human antispasmodics, i.e. colic drenches to us, comes up with *beta-diethylaminoethyl fluorine-9-carboxylate hydrochloride, diethylaminoethyl phenylthienyl acetate hydrobromide, and diphenylacetyl diethylaminoethanol hydrochloride*, not to mention several other concoctions paraded in the cavalcade of more convenient orthography, namely: *syntropan, pavarine, asymatrine, adiphenine, et alia* which do a better job than the well-known drenches for spasmodic colic.

The automobile will have caught up with the horse when bronze statues of the man behind the wheel of a car are erected in the public parks.—Paul Gibson.

(CLASSIFIED ADS — continued from p. 56)

FOR SALE—New Orleans veterinarian with established practice, grossing \$25,000 a year, has been recalled by U. S. Army. We are, therefore, offering for sale his practice together with building containing 3,500 sq. ft. of space and apartment for night man. Practice is 75 per cent small animal. This is a real opportunity as there has been a veterinary hospital on this site for the last fifty years. Address Eason-Jeansonne, Realtors, 821 Poydras St., New Orleans 18, La.

FOR SALE—veterinary hospital in California, fully equipped, 110 kennels, living quarters; \$4,800 per year. Price \$58,000, \$17,500 down. Health forces sale. Address "Box Z 12," c/o JOURNAL of the AVMA.

FOR SALE—a good veterinary practice, including home and office, in southwestern Minnesota. Established for thirty years. Address "Box Z 8," c/o JOURNAL of the AVMA.

FOR SALE—large animal practice in midwestern small town. Grossed over \$53,000 last year. Will sell for \$22,000. Includes large modern home and drug stock. Address "Box Z 7," c/o JOURNAL of the AVMA.

FOR LEASE—modern, completely equipped small animal hospital in southern California. Long-established, active practice, grossing approximately \$40,000 yearly. Address "Box Z 28," c/o JOURNAL of the AVMA.

FOR SALE—to military-exempt graduate of AVMA-approved school, half interest in small animal practice in southern state—not Florida. Modern, well-equipped hospital now doing a gross of \$20,000 annually. Owner preparing to leave for military duty. Will take \$15,000 cash to handle. Will make exceptional deal regarding future to right man. Investigate this offer at once. Address "Box Z 29," c/o JOURNAL of the AVMA.

FOR SALE—small animal hospital located in Long Island, N.Y. Expect to be recalled into service soon. Modern and well equipped. Price reasonable. Address "Box Z 17," c/o JOURNAL of the AVMA.

FOR SALE OR LEASE—newly built small animal hospital in southeastern Wisconsin. Apartment upstairs. X-ray machine, drugs, and equipment. Opportunity for mixed practice. Address "Box Z 19," c/o JOURNAL of the AVMA.

FOR SALE—in San Francisco Bay area, completely equipped small animal hospital for 36 animals. Established three years. Address "Box Z 20," c/o JOURNAL of the AVMA.

FOR SALE—modern, fully equipped small animal hospital in one of America's oldest and most exclusive communities. Main hospital building with accommodations for 60 animals, including 20 large outside runs. Separate building containing beauty shop with ten kennels and outside runs, x-ray room, and garage. Detached cottage living quarters. The whole on a landscaped area. Proposition requires an exceptionally high type man of good financial standing. Complete details in first letter. Address "Box Z 23," c/o JOURNAL of the AVMA.

(Continued on p. 40)

*New Tyrothricin-B.F.I.
Uterine Tablets Effective
in 210 Cases* of Metritis
and Retained Placenta!*

B.F.I. Uterine Tablets

The *antibiotic-antiseptic* action of B.F.I. Uterine Tablets, *new* tyrothricin-bismuth formic iodide combination, proved effective in treating 210 cows with metritis, retained placenta, and metritis following retained placenta.*

Treatment with these new uterine tablets showed "little or no offensive odor from the uterine discharge and no evidence of septicemia. . . . The results indicate it (Tyrothricin-B.F.I. Uterine Tablets) is a safe and effective preparation for use in such cases."*

**Veterinary Med.* 45:241, June 1950.

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Bismuth Formic Iodide	0.5 Gm.
Bismuth Subgallate	2.0 Gm.
Urea	1.0 Gm.
Boric Acid	2.15 Gm.
Amol (mono-n-amylhydroquinone ether)	5 mg.
Zinc Phenolsulfonate	0.1 Gm.
Potassium Alum	25 mg.
Thymol	1 mg.

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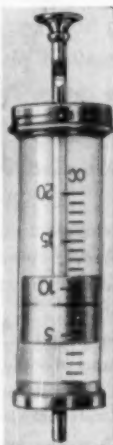
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Boston Instrument Mfg. Co., Inc.
50 Thayer St., Boston 18, Mass.



(CLASSIFIED ADS — continued from p. 58)

Hospital in California coast town for lease, or operate on commission, salary, whichever suits best. New house to live in. Reason, owner going into service. Address "Box Z 24," c/o JOURNAL of the AVMA.

Miscellaneous

WANTED—one copy of Kimball's "State Board Questions and Answers." Reply Box 123, Jewett City, Conn.

WANTED—the book "State Board Questions and Answers." Address "Box Z 18," c/o JOURNAL of the AVMA.

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DOG WORLD—monthly on all breeds; leads in circulation. Keeps you fully, expertly informed on all dog matters. \$3 one year, \$5 two years, \$10 five years. Judy Publishing Co., 3323 Michigan Blvd., Chicago 16, Ill.

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Pasteurized Milk.—The alleged infallibility of pasteurizing milk (discussed in a recent issue of *Certified Milk*) is a subject worth keeping alive, lest unclean milk so treated be awarded a seal of approval undeserved and place a premium on insanitary production and handling. Says the editorial "Some producers ship unwholesome milk to market with the self-satisfying remark that it will be pasteurized anyway."

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Exclusive Publication.—Articles submitted for publication are accepted with the understanding that they are not submitted to other journals.

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Illustrations.—Photographs should be furnished in glossy prints, and of a size that will fit into the Journals with a minimum of reduction. Photomicrographs which cannot be reduced should be marked for cropping to 1-column or 2-column width. Drawings should be made clearly and accurately in India ink on white paper. Figures appearing on graphs or charts should be large enough to allow for reduction necessary for the chart or graph to fit on Journal pages. All illustrations should bear the name of the author on the back.

Tables.—Tables should be simple. Complex tables are not conducive to perusal. It is wiser to summarize complex material rather than to attempt to tabulate it.

News.—Secretaries of associations and readers are requested to send us announcements of meetings and news items.

Anonymous Letters.—Anonymous communications, of whatever nature or purpose, to the JOURNAL or to the Association will not be published or referred for consideration to any Association official or committee.

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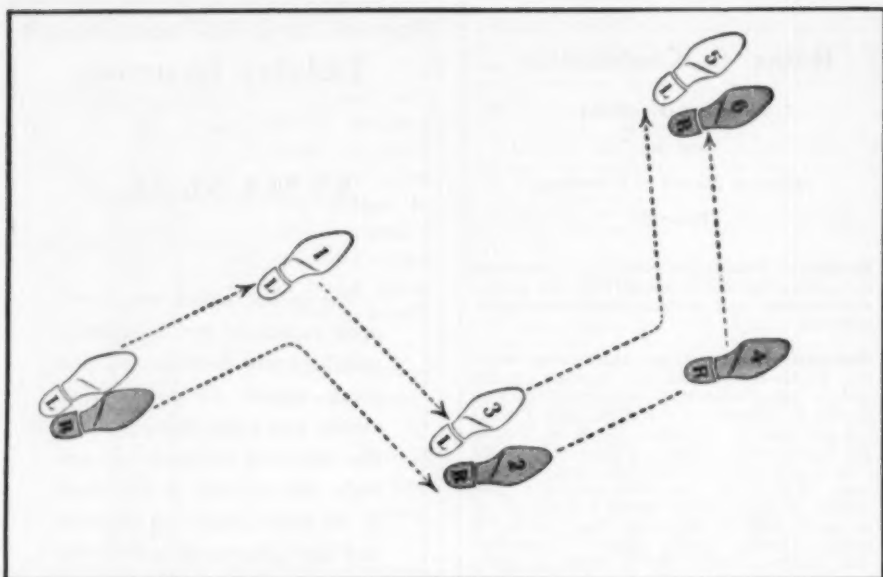
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